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the most
Compassionate and Merciful

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Intelligence Report

Outlook for Soviet Oil and Gas

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OUTLOOK FOR SOVIET OIL AND GAS

SUMMARY

The USSR will probably fall short of its 1980 oil production target of 12.4-12.8 million b/d. A shortfall of 5% to 8% is likely because West Siberian fields, the source of all planned increases in output, probably will not meet output goals, since essential technological improvements cannot be achieved in time. To compensate for the production shortfall the Soviet Union could curb oil consumption. If, as some officials have been suggesting, annual increases in oil consumption can be lowered to about 5% through 1980, instead of the 7%-7.5% of recent years, then the USSR will have adequate oil to meet domestic needs, increase deliveries to Eastern Europe, and maintain sales to the West near present levels. If consumption growth cannot be slowed, then the Soviets must either cut oil exports to Eastern or Western Europe, or import more OPEC oil.

Soviet goals for gas production in 1980—1,093 to 1,188 million cubic meters per day (cmd)—also appear overly optimistic. Output is likely to be 3% to 10% short of the target, largely because of difficulty in constructing sufficient pipeline capacity. Although the shortfall could result in failure to meet some gas export obligations and/or lower domestic use of gas, it seems more probable that steps will be taken to avoid such events. Any reduction in gas exports to the West would mean loss of foreign exchange earnings, a loss that the Soviets will seek to avoid. Some additional gas could be imported from Iran and Afghanistan to make up for below-plan output and to maintain exports. Moreover, some substitution of coal for gas in industrial uses is likely during 1976-80. Such substitution, however, will be a gradual process. Shortages of domestically produced pipe and pipeline equipment and increasing dependence on imports, coupled with persistent, unsolved problems that have caused a 10-year record of plan underfulfillment, probably will preclude completing the ambitious pipeline construction program.

The USSR has become the world's leading crude oil producer and second only to the United States in natural gas output largely using its own equipment and technology, except for large imports of line pipe and pipeline equipment. However, during the Tenth Five-Year Plan (1976-80), the USSR will need Western equipment and technology to locate and develop new oil reserves in Siberia and offshore in Arctic seas if increases in production are to

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Note: Comments and queries regarding this report are welcomed. They may be directed to J. Richard Lee of the Office of Economic Research, Code 143, Extension 6716.

continue in the 1980s. The problem is that Soviet imports of Western technology and equipment will be limited by Western manufacturers' capability to supply and by Soviet ability to pay hard currency or to arrange barter payment. Although the Soviet petroleum industry has a high priority for purchasing foreign equipment, 12 of 25 proposed projects were postponed in the fall of 1975 because of hard currency shortages.

DISCUSSION

Present Performance

1. The Soviet Petroleum industry* has grown rapidly during the past 15 years. Since 1974 the USSR has been the world's leading crude oil producer and second only to the United States in natural gas output. Oil production in 1975 reached 9.[illegible] million b/d** and natural gas output about 793 million cmd (see Table 1 of [illegible]ppendix D). During 1961-75 oil production grew at an average annual rate of 8.3% and natural gas at an average annual rate of 13.1%. The share of oil and gas in the Soviet energy balance grew from about 50% of production and 46% of consumption in 1965 to 64% and 60% in 1975 (see Table 2 in Appendix D).

2. Except for pipelines, the Soviets have achieved their present prominence using largely their own petroleum equipment and technology. In recent years, however, the USSR has been ordering and purchasing Western oil and gas equipment and technology to upgrade its technical capability. During 1972-75, such orders were about $1.3 billion, of which the US share was $226 million.

3. The USSR is a substantial oil exporter and is in the early stages of becoming a sizable natural gas exporter. Oil exports in 1975 were 2.6 million b/d: 1.55 million b/d to other Communist countries, chiefly Eastern Europe, and 1.05 million b/d to the West (see Table 2 of Appendix D). These sales to the West are the Soviet Union's largest single source of hard currency earnings, amounting to almost $2.6 billion in 1974 and almost $3.2 billion in 1975.

4. Before the sharp increase in OPEC oil prices in 1973/74, Soviet oil was sold to the West at about the OPEC price. The price of Soviet oil exported to Eastern Europe, however, was usually higher. The situation was reversed after OPEC quadrupled its oil prices in 1973/74. The USSR followed suit on its sales to Western customers, but prices to Eastern Europe, which had generally been set under agreements covering the 1971-75 plan period, were raised only slightly and remained less than $3 per barrel through 1974. Early in 1975, however, the USSR strongarmed its CEMA partners and negotiated increases that raised the price to East European customers to more than $7 per barrel—still well below the OPEC price of $10.50. At the same time Moscow instituted a sliding scale formula calling for annual price revisions based on the average world oil price for the preceding five years. The USSR will no doubt follow OPEC's pricing policies in its exports to the West in an effort to maximize hard currency earnings.

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*Additional details are given in Appendixes A, B, and C; 17 statistical tables comprise Appendix D.

**Including gas condensate.

5. Much of the crude oil exported in recent years came from the large older fields in the Urals-Volga region—Romashkino, Mukhanovo, Tuymazy, Arlan*—and is similar in quality to Saudi and Iranian medium crudes. It is generally naphthenic-paraffinic with an API gravity of 32°-35°, contains 1.2%-1.8% sulfur, and can be processed in refineries equipped to handle comparable Middle East oil. During the past few years, oil production from West Siberia has risen sharply, and this crude (API gravity of 34°-35° and a sulfur content of less than 1%) has been blended with Urals-Volga oil for domestic use and for export.

6. In the past several years the discovery rate of new oil reserves has fallen behind the rate of production increases. As a result, requirements for new capacity to offset depletion of old fields have risen rapidly. Major fields in the Urals-Volga region that contributed to rapidly expanding output during the 1950s and 1960s are being quickly depleted. Production from this region is being maintained only by extensive waterflooding, imported submersible pumps, and exploration and development of smaller, deeper, and economically less desirable deposits. Almost all the increase in oil production during the past two years has come from West Siberia. In 1975, this region produced 2.96 million b/d, 30% of total Soviet output. For further details see Appendix A.

Problems and Prospects for 1976-80

Oil

7. Soviet plans to produce 12.4-12.8 million b/d of oil in 1980 appear over optimistic. Meeting the Tenth Five-Year Plan (1976-80) target depends primarily on rapidly developing West Siberian deposits and substantially improving oilfield technology, neither of which appears likely. In 1980, output probably will reach about 11.8 million b/d, about 5% to 8% below the goal, considerably more than the 3% shortfall in 1975.

8. The USSR could diminish the effect of this shortfall by reducing oil consumption as called for in present plans. Substitution of coal for oil by large industrial users, such as thermal powerplants, is the logical first step. If the average annual rates of increase in oil consumption can be held to about 5% through 1980, instead of the 7%-7.5% that has prevailed in recent years, oil supplies should be adequate to meet domestic needs, increase deliveries to Eastern Europe, and maintain sales to the West near present levels.

9. If, however, the rate of increase in oil consumption is not sufficiently lowered, the Soviets must either cut exports to Eastern and Western Europe or increase imports of OPEC oil. The USSR is heavily committed to providing the bulk of Eastern Europe's oil supply, and the need for hard currency would

*See the map.

militate against large reductions in sales to the West. Because large direct purchases would be limited by hard currency shortages, the USSR probably would seek to get OPEC oil by barter, perhaps for military equipment (see Table 3 of Appendix D).

10. All of the increased output is to come from West Siberia, where production is to rise from 2.96 million b/d in 1975 to 6.0 to 6.2 million b/d in 1980 and provide about half of total oil output. This goal is considerably higher than an earlier 1980 target of 4.6 to 5.2 million b/d. Available Soviet data on West Siberian oilfields indicates production will peak at about 5.7 million b/d. Some of these fields have already peaked; others will peak before or after 1980. Although new fields are being discovered in West Siberia, no giant fields have been found comparable with Samotlor, which has a production potential of 2.2 to 2.4 million b/d. During late 1975, oil industry officials continued to refer to the earlier 4.6 to 5.2 million b/d as the goal for West Siberia in 1980. The midpoint of this range appears to be a reasonable target.

11. The West Siberian goal for 1980 may have been raised because Soviet planners realized that a number of the major oil fields in the Urals-Volga region are being depleted rapidly and that output from this major producing area cannot be maintained at present levels during the next five years. V.D. Shashin, Minister of the Petroleum Industry, acknowledged the problem when he stated that new production will have to average 2.0 million b/d during each of the next five years and that two-thirds of this is merely to offset depletion.

12. Soviet plans also call for major improvements in exploration, development, and transport technology and equipment. Similar programs in the past met with only small success, and future prospects appear no more promising.

13. The fall-off in the discovery rate of new oil reserves is reflected in Soviet drilling statistics (see Table 4 of Appendix D), which reveal the sharp reversal in the late 1960s of the earlier trend toward a greater emphasis on exploratory drilling. During 1970-74 about 60% of total drilling was for development wells to maximize production; in the previous decade exploratory drilling accounted for more than half of total drilling. As early as 1972 Shashin pointed out that after 1975 accelerated development of the oil industry would be possible only if new oil basins larger than West Siberia can be developed. Soviet officials are concerned that the flow of Tyumen oil may slow down in five or six years while the need for liquid fuel will continue to rise. As a result, plans have been made for extensive exploration in East Siberia during 1976-80.

14. Given the climate, worse logistic problems than in West Siberia, more complex geological conditions, and the lack of adequate geophysical equipment, it is unlikely that East Siberia will make a worthwhile contribution to

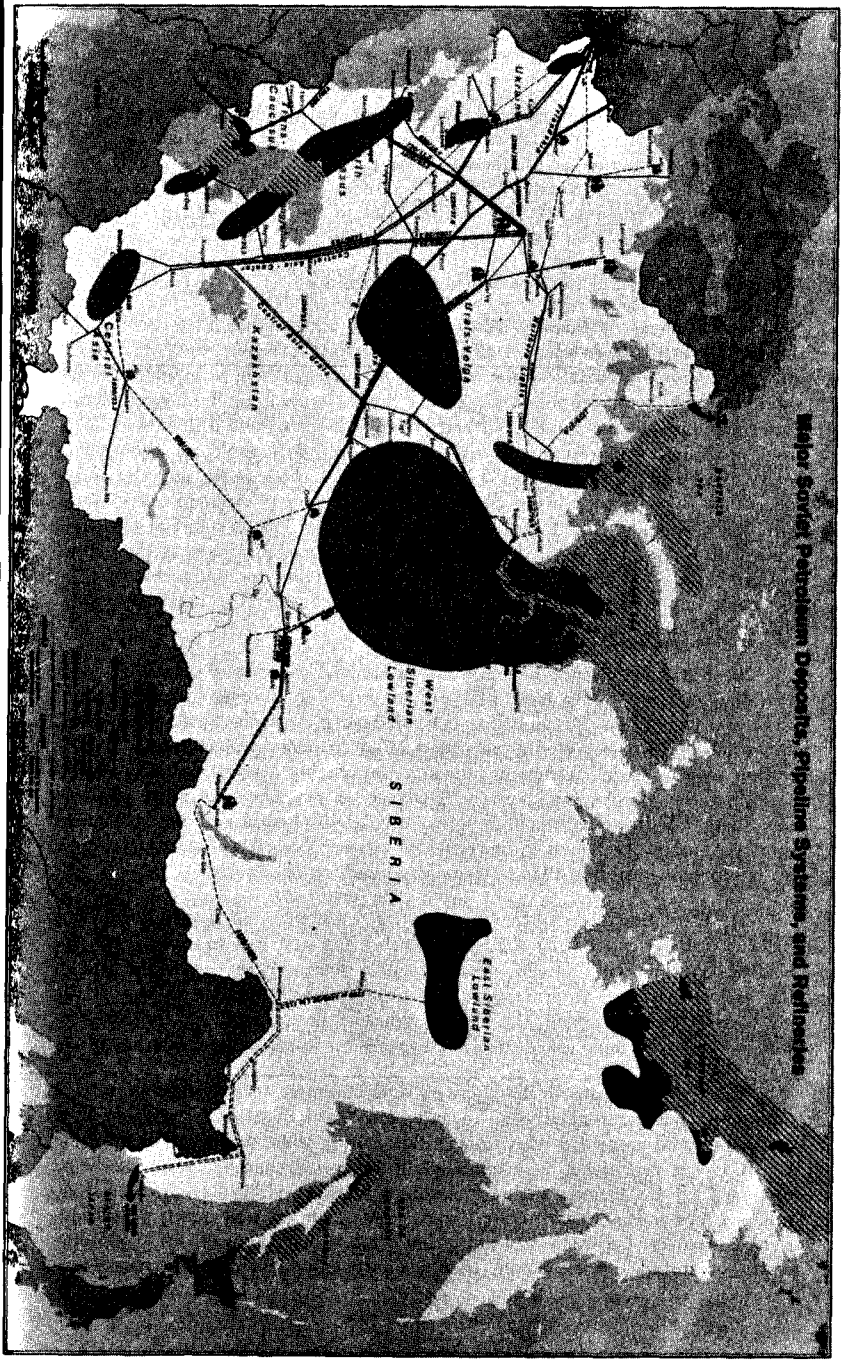
national oil supply before the mid-1980s. The search for and exploitation of onshore Siberian reserves would be greatly facilitated by Western technology and equipment. The USSR does not have enough sophisticated geophysical tools, such as reflection seismic equipment and digital field computer units, used routinely in the West. Soviet capability to map deep structures is limited without such equipment, and this is proving a handicap now that the average depth of exploratory wells is approaching 3,000 meters. Poor-quality drill bits, shortages of good-quality drill pipe and casing, and underpowered mud pumps also contribute to inefficient field operations. The standard Soviet turbodrill, an excellent tool for the relatively shallow, hard rock structures previously encountered in the Urals-Volga region, is not very efficient at depths below 2,500 meters, where most new oil will be found.

15. Soviet offshore experience thus far has been limited chiefly to the relatively shallow waters of the Caspian and Black Seas where operations are conducted from trestles or "man-made islands." The USSR has only four mobile offshore platforms (jackups), all in the Caspian Sea, and only one is capable of drilling in water depths up to 90 meters. For the USSR to move to deeper water in the Caspian and in the Arctic Seas, or the Sea of Okhotsk off Sakhalin, Western experience, technology, and equipment will be essential. Even with help, no new oil could be produced in these areas before 1980.

Natural Gas

16. Soviet production plans for natural gas in 1976-80 are unlikely to be achieved, thus continuing the pattern of the past decade. Fulfillment of the 1980 gas goal of 1,093 to 1,188 million cmd depends heavily on rapid increases in output from West Siberia, major improvements in gas production and pipeline technology, and increased supplies of high-performance equipment, none of which appears feasible. The lag in pipeline construction caused by shortages of large-diameter line pipe and ancillary equipment has been the most serious problem, contributing to a 10% production shortfall in 1975. In view of these problems, 1980 output probably will not reach 1 billion cmd and will be 3% to 10% below the planned range (see Table 5 of Appendix D for gas supply and demand estimates).

17. The Tenth Five-Year Plan (1976-80) calls for constructing 35,000 kilometers of gas pipelines. This is 2,000 kilometers more than was planned for 1971-75, when construction fell 1,000 kilometers short of the goal. The bulk of this construction will be large-diameter, high-capacity lines operating at pressures up to 75 atmospheres, distributing gas from fields to be developed in West Siberia, Komi ASSR, and Orenburg Oblast in the Urals. A substantial part of the pipe, valves, and compressors will have to be imported from the West, either by hard currency purchases or as part of contracts for delivery of Soviet gas.



18. Much of the new gasfield development and pipeline construction will be concentrated in the permafrost region of northern Tyumen Oblast in West Siberia, where commercial production from Urengoy, the world's largest gasfield, is to begin in 1978. Soviet efforts to provide better equipment and technical know-how to overcome difficult problems in the area have lagged badly, and it is doubtful that the 1980 target will be met.

Equipment Needs and Foreign Exchange Restraints

19. Although the major imports of Western equipment and technology to date have consisted of items for oil and gas pipeline transport, the USSR probably could use $150-$200 million worth of oil and gas field equipment in the short run to increase output from existing fields. Items from the United States that could provide the most rapid and effective help include drill bits, drilling fluid programs, submersible oil well pumps, multiple completion equipment, rotary rigs, drill pipe, and casing. (Description of these items and the assistance that they could provide for the USSR is given in Appendix B.) Along with the equipment and technology the presence of Western technicians and service firms would be needed to provide on-the-spot applications of the necessary know-how. Although the Soviets object to having foreign technicians in the field, imported equipment often is operated considerably below optimum efficiency without such assistance.

20. Soviet ministries engaged in producing exportable commodities—including oil—reportedly have first call on funds to purchase foreign equipment and technology. Despite this acknowledged priority the Soviet leadership, in the fall of 1975, reportedly postponed 12 of 25 major projects under consideration for the Soviet petroleum industry, presumably because of uncertainties regarding the USSR's hard currency balance of payments. In other negotiations with US firms in recent months, the USSR, because of hard currency shortages, asked for delays in deliveries of submersible oil well pumps and gas lift equipment until late 1976 with payment to be made in 1977.

21. Escalating costs also play a part. For example, in negotiations for a turnkey drill bit plant from a US firm during the past two to three years, the Soviets have gradually agreed on all technical details. However, as the cost of the project increased from $150 million to almost $400 million because of rising costs of US equipment, the Soviets indicated in January 1976 the cost now was too high and have asked the US company for less expensive alternatives.

22. The US share in total orders and contracts for Western petroleum equipment has not bulked large to date, but negotiations under way on large contracts could cause US sales to skyrocket during the next several years if the USSR is not restrained by availability of foreign exchange. Deals are being discussed for US turnkey plants to produce marine wellhead equipment ($250 million), ball valves ($300 million), and submersible oil well pumps ($100 million). Moreover, US firms may get orders for a sizable share of the $1.3 billion worth of turbines, compressors, and auxiliary equipment for the compressor

stations on a 2,750-kilometer, large-diameter (56-inch) gas pipeline from Orenburg (southern Ural Mountains) to the western border of the USSR. US firms are also negotiating to participate in building facilities to construct mobile offshore drilling platforms and possibly to supply several semisubmersible platforms or drillships. The total value of these deals would exceed $1 billion.

23. Proposals for cooperative development of Siberian gas fields and exports of liquefied natural gas (LNG) are being negotiated with US, West European, and Japanese firms and if agreed upon will require large amounts of Western equipment and technology (see Appendix C for details of these proposed ventures).

Effect of Increased Output on Supply and Demand

24. Western equipment and know-how could provide the basis for more rapid development of West Siberian oil and gas deposits that have been discovered but are not yet producing. The extensive use of US submersible pumps in old and new fields could maximize fluid flow and maintain present levels of output longer. Western equipment and technology will be an essential input into prospecting and exploration, especially in the land areas of East Siberia and the Soviet Far East and the offshore regions of the Arctic Seas. This exploration effort is a must in order to locate new petroleum deposits to continue to increase production in the 1980's.

25. Most of any increase in oil production during the next several years beyond present plans, through the application of imported Western equipment and know-how, probably would be exported to the West to increase foreign exchange earnings. Efforts are under way to reduce the rate of growth in domestic consumption in the USSR as evidenced by the suggestion of Petroleum Minister Shashin to increase domestic oil prices. Moreover, at the recent 25th Congress of the Communist Party of the Soviet Union, Premier Kosygin stressed that increments in oil and gas output during 1976-80 will be used for "technological requirements," and emphasis is to be placed on using more coal, hydroelectric power, and nuclear power to meet energy needs. Although the transport sector of the economy will require larger volumes of gasoline and diesel fuel as the production of trucks and automobiles rises, use of oil as a fuel for industrial boilers will taper off and rising demands by the chemical industry will take larger shares of oil and gas for manufacture of petrochemicals.

26. If increased production of natural gas should result from use of imported Western technology and equipment, the domestic market probably would absorb the bulk of it, as export commitments are based on long-term contracts and the desired market in Western Europe is saturated for the next few years. Moreover, Eastern Europe is already scheduled to receive much larger volumes of Soviet gas and could not accommodate much more than is called for by present plans. Increased domestic use of gas, however, could free small amounts of oil for export.

APPENDIX A

INDUSTRY DETAILS AND PAST PERFORMANCE

Reserves

Prospective oil and gas areas (sedimentary basins) within the USSR cover an estimated 11 million square kilometers, about half of the total land and inland sea area. About two-thirds are considered favorable for the occurrence of petroleum.

Only fragmentary data are available on the size of Soviet oil reserves, as this information is a state secret. Oil discovered to date in the USSR is estimated at some 150 billion barrels. Approximately 45 billion barrels have already been produced and perhaps an additional 30-40 billion barrels are equivalent to proved, recoverable reserves, according to the US definition. (The United States has proved reserves of about 33 billion barrels.) Most of the potential reserves are located east of the Urals Mountains, especially in the West Siberian Basin, which is reported to be one of the richest petroleum basins in the world, but which also has difficult climate and terrain. The Samotlor oilfield in West Siberia, with proved and probable reserves of 15 billion barrels, is ranked sixth among giant oilfields of the world. Substantial oil reserves are also believed to exist offshore in the Caspian, Barents, Kara, and East Siberian Seas, as well as in the Sea of Okhotsk offshore from Sakhalin Island. Potential reserves offshore from Sakhalin in a 100,000-square-kilometer area out to 200 meter water depths have been estimated at 30-45 billion barrels. About half of these reserves may be under water depths of up to 100 meters.

Information on reserves of natural gas usually is published periodically in Soviet technical journals. "Explored" reserves of natural gas increased about sixfold during 1966-73, and as of 1 January 1974 totaled about 22 trillion cubic meters, about 70% more than comparable reserves in the United States (see Table 6 in Appendix D). About two-thirds of Soviet gas reserves are located in Siberia, with most of them in Tyumen Oblast near the Ob Gulf. The Urengoy field in northern Tyumen Oblast is the largest known gasfield in the world, containing reserves estimated at 4-6 trillion cubic meters (see the map).

Quality

The quality of Soviet crude oil varies among producing regions. About two-thirds of all crude oil produced in the USSR has a sulfur content ranging

from 0.5% to 2.0% by weight. Some 10% has a high sulfur content (more than 2%) and the remainder has a sulfur content of 0.5% or below. Many crudes produced in the Urals-Volga region are intermediate based oils (naphthenic-paraffinic) with a medium-to- high sulfur content (1% to 3% by weight) and salt content. The crude oils of the newer fields in West Siberia are paraffinic-naphthenic types with a low- to medium-high sulfur content(0.05% to 2.2%) and medium to light gravity (32°-36° API). Crude oils from the third largest producing region in Mangyshlak Peninsula of Central Asia are generally paraffinic with a low sulfur content—less than 1% by weight. These oils have a high wax content and pour point, tend to solidify at temperatures below 90°F, and must be heated for pipeline transport.(See Table 7 of Appendix D for quality of crude oils from the major producing regions.)

The quality of Soviet oil products exported to the West is generally comparable to that of products from Western refineries. The USSR has made a deliberate effort to deliver high-quality products to Western customers; in many instances the products sold to the West are of higher quality than those made available for domestic use.

Regional Production

The Urals-Volga region is the leading producer of oil in the USSR but will soon be surpassed by West Siberia. In the mid-1960s the Urals-Volga accounted for about 70% of the total oil output of the USSR. After 25 years of production, many of these deposits are being depleted, and as a result oil production has leveled off in recent years. Since the early 1970s the bulk of the increase in crude oil production has come from vast deposits in West Siberia, where commercial production began in 1965. Development of these deposits is slowed, however, by difficult terrain and severe climate. Sizable production increases were expected from the oilfields in the Mangyshlak Peninsula in western Kazakhstan, but because of improper waterflooding procedures and complicated drilling problems, output has not risen nearly as fast as anticipated. (See Table 8 of Appendix D for regional production of oil.)

The Soviet gas industry has had a poor record in plan fulfillment for the past two decades largely because of inability to coordinate field development with construction and efficient operation of pipelines and gas treatment plants in new gasfields. In recent years depletion of some of the older large gasfields in the western part of the country has also been a factor in plan underfulfillment. Regions east of the Urals Mountains are providing an ever larger share of gas output. In 1975 about 45% of total gas production originated in the eastern regions (primarily Central Asia and West Siberia), whereas in 1965 only about one-sixth came from this area (see Table 9 of Appendix D).

Refining

In general, Soviet oil refining technology is inferior to that of the United States, especially in depth of refining and complexity of refining processes.

However, Soviet demand for petroleum products differs widely from that in the United States, especially as passenger automobile transport in the USSR is not a major consumer. The Soviet consumption pattern, much like that of Western Europe, is centered on heavy fuel oil for industry and diesel fuel for transport and agriculture. Soviet demand for higher quality oil products—high-octane gasoline and low-sulfur diesel fuels and fuel oils—is increasing, and refineries are being expanded and large new ones built to incorporate secondary processing units for upgrading quality and increasing flexibility of the product mix. At the end of 1975, estimated total primary distillation capacity in Soviet refineries was about 8 million b/d in some 50 major sites. About 60% of total capacity is located in the European USSR and Urals-Volga (See Table 10 in Appendix D). During the past decade output of petroleum products more than doubled, rising from about 3.5 million b/d in 1965 to some 7.2 million b/d in 1975 (see Table 11 in Appendix D). During this period the yield of products has been adequate to satisfy domestic demand and to permit exports averaging almost 600,000 b/d.

Domestic Consumption

During 1966-75 the apparent domestic consumption of petroleum products rose an average of about 7.5% annually, from 3.1 million b/d in 1965 to almost 6.5 million b/d in 1975 (see Table 12 in Appendix D). Although the quantity of oil products has been adequate, some inflexibility in refinery operations has resulted in sporadic local shortages of certain oil products. Local shortages also result from inadequate transport facilities during peak consumption periods. For example, at harvest time, when railroads are overburdened, supplies of diesel fuel tend to be tight.

Most Soviet gas is used by the industrial sector, with the electric power industry accounting for about one-fourth of total gas consumption. During the 1970s, however, there has been a trend toward greater use of natural gas for nonenergy purposes, especially as a raw material for the manufacture of chemicals and in the metallurgical industry as a reducing agent for the manufacture of iron and steel. The apparent consumption of natural gas has more than doubled during the past decade, rising from about 350 million cmd in 1965 to almost 775 million cmd in 1975 (see Table 5 in Appendix D).

Distribution

Oil transport continues to be a major problem because crude production is concentrated in a few regions far from refining and consumption centers. Through 1964, railroads carried more oil than any other mode of transport at a cost almost three times that of pipeline transport. Since 1965, however, with the doubling of the oil pipeline network to almost 58,000 kilometers in 1975, pipelines have accounted for the largest share of oil transport. In 1974 slightly more than half of all the oil transported was by pipeline, with railroads still accounting for as much as 43% (see Table 13 in Appendix D). The major part

of the pipeline network is for long-distance crude oil transport; only about 20% of petroleum product transport is via pipeline.

Considerable priority has been placed in expanding the Soviet gas pipeline system. During 1966-75 almost 58,000 kilometers of gas pipelines were built (see Table 14 in Appendix D), with at least 60% of the total consisting of large-diameter lines (40 inches or more). In 1975 about 40%—40,000 kilometers—of the total length of the gas pipeline network was estimated to consist of large-diameter lines.

Foreign Trade

The USSR has been a net exporter of oil in increasing amounts since 1955. Since the mid-1960s, net exports almost doubled, rising from about 1.3 million b/d in 1965 to 2.6 million b/d in 1975, or an average annual rate of 6.9% (see Table 15 in Appendix D). In recent years an increasing share of Soviet oil exports has gone to other Communist countries, especially Eastern Europe, although oil sales to the West are the largest single source of hard currency earnings. In 1974 oil sales to hard currency countries earned about $2.6 billion and almost $3.2 billion in 1975 (see Table 16 in Appendix D).

Until the last few years almost all natural gas was consumed domestically. Since 1970, increasing volumes exported to both Eastern and Western Europe have more than offset imports from Afghanistan and Iran (see Table 17 in Appendix D). Most contracts signed with West European countries—Austria, West Germany, Italy, and France—involve the sale of large-diameter pipe and ancillary equipment for constructing the oil and gas pipeline network in the USSR, both for domestic use and export. As domestic production increases and the pipeline network expands, the USSR will sharply increase its net exports of gas from the present level of 19 million cubic meters per day, and gas exports will become a significant foreign-exchange earner.

APPENDIX B

EQUIPMENT AND TECHNOLOGY NEEDED FOR INCREASED OUTPUT

Inputs of Western Equipment and technology could increase the efficiency of oil and gas field operations and raise the yield of oil from existing fields. The types of equipment and know-how that would make the greatest contribution to Soviet petroleum output include the following:

Drilling Fluids

Scientifically planned drilling-mud programs are almost unknown in the USSR. There is not enough prepared mud available and most drilling crews use local clays, regardless of its condition, mixed with water and additives. To prevent blowouts, drillers add hematite or anything else handy to make muds heavy. In situations where circulation of mud stops due to loss of fluid, drillers pour down straw, wood chips, and the like to solidify the mud sufficiently to recondition the hole and to restore circulation. After a well is completed, mud is stored in barrels for the next well, no matter what conditions may require. Such practices, especially in deep drilling, cause extensive formation damage and invasion problems in possible petroleum-bearing formations that render log interpretations almost useless and can cause wells to be abandoned needlessly.

Drill Bits

The quality of Soviet drill bits generally is poor compared with Western bits. Large numbers of a narrow selection of bits are used in the USSR. Most Soviet bits are specified for drilling according to depth and not according to the type of strata being drilled. With the extensive use of the turbodrill system, the weight of the drill string is not placed on the bit and, short of raising the entire drill string to inspect the bit, there is no way of determining whether it is wearing rapidly or not at all. As a result, many bits are replaced prematurely. In general, under similar operating conditions, US rock bits will last 4-5 times longer than Soviet bits. The USSR has bought small numbers of US drill bits and is seeking to obtain a turnkey rock bit plant from a US firm to manufacture 100,000 bits per year.

Multiple Completion Equipment

This type of equipment is relatively scarce in the USSR, requiring, in many fields, that separate holes be drilled at one site where separate producing zones exist. Multizone well completions permit important economies in reduced drilling costs, savings in casing and tubing, drilling equipment, flow lines, and pumping equipment.

Submersible, Centrifugal, Electric Oil Well Pumps

As fields in the Urals-Volga region have been producing for 20-25 years, the need for submersible pumps to increase total fluid (oil and water) recovery is growing. During the past 4-5 years the USSR has bought more than 1,000 of these pumps from the United States and is trying to get a US firm to agree to build a submersible pump manufacturing plant in the USSR that will produce 5,000 units per year. Extensive use of these pumps could increase oil yields from old and new fields in a relatively short span of time (1-2 years), depending on pump availability from western suppliers.

Rotary Rigs, Drill Pipe, and Casing

The supply of drill pipe and casing in the USSR is not adequate in sizes, quantity, and quality required for field development, especially in poor climates and under difficult well conditions. Moreover, the turbodrill, which accounts for three-fourths of all Soviet drilling, is inefficient at depths below 2,500 meters. Conversion to rotary drilling was recommended by Soviet planners at least 10 years ago, but investment costs were too great, as the turbodrill was the backbone of the industry. Soviet drilling capabilities are improving but are far behind those of the West; wells in the West can be drilled to 3,000 meters in about a month compared with three months in the USSR.

Exploration Equipment and Technology

Soviet equipment for exploration lags 10 years behind that used in the United States. Imported Western reflection seismic equipment and digital field computers would be invaluable in the search for oil and gas, especially in the permafrost of Siberian and North European regions and in deep-faulted structures in Central Asia. Equipment of this type, whether of Soviet or Western origin, would not increase the yield of petroleum from existing fields, but it is essential for locating new oil resources to maintain increases in production in the 1980s.

Secondary and Tertiary Recovery

More than half of the oil produced in the USSR comes from wells using water injection. Compared with Western firms, the Soviets employ waterflooding earlier in development of their fields, tend to use higher water/oil injec-

tion rates to maximize production, and use wider well spacing largely to minimize capital costs. Excessive water injection pressures tend to produce fractures in the reservoirs, inducing nonuniform flow through the reservoir. Less permeable zones in the reservoir are bypassed as the water displaces the oil in the reservoir by excessive fingering* and coning.** The wide well-spacing pattern — 50 to 65 hectares per well—probably will require drilling of additional wells if production is to continue from the reservoirs that have been produced at high rates.

The USSR has undertaken several tertiary recovery (chemical or thermal treatment of reservoir rock) projects that resulted in production of only about 20 million barrels of oil in 1975. Work is continuing on tertiary recovery methods, by which recovery of 70% to 80% of oil-in-place is technically feasible, but the costs are high, rigid controls must be applied, and considerable time will pass before substantial increases in output will occur. The USSR has entered into scientific and technical agreements with two US companies, and one aspect of technology to be provided is in secondary and tertiary recovery.

Nonuniform flow of water where, in more permeable portions of the reservoir, the injected water migrates at a higher rate, causing a fingerlike effect in the flooded portion of the reservoir.

** Excessive injection with too rapid withdrawal from producing wells can cause oil-water contact in the reservoir to change from a desirable horizontal plane surface to a cone-like configuration around the producing well-bore. Thus, much of the reservoir oil is bypassed and remains lost unless additional, costly wells are drilled.*

APPENDIX C

PROPOSED LIQUEFIED NATURAL GAS (LNG) COOPERATIVE VENTURES

The Soviet Union may obtain some assistance from Western firms in developing its Siberian gas resources in exchange for long-term deliveries of Soviet LNG. During 1972, two LNG cooperative ventures—North Star and Yakutsk—were proposed in which US firms would participate and up to 85 million cmd would be delivered to the United States. After considerable activity for the first year or so, negotiations on these projects stalled because of differences over the price of the LNG and the financing of facilities. Talks on both projects have resumed in recent months.

North Star

The North Star project was initiated by a consortium of three US companies—Tenneco, Texas Eastern Transmission, and Brown and Root. Gas was to be transported by a 2,400 kilometer, 48-inch-diameter pipeline from the Urengoy gas field in West Siberia to a liquefaction plant near Murmansk, and then delivered by LNG tanker to the US east coast. Deliveries were originally planned to begin in 1980 and to total 57 million cmd (about 2.5% of estimated US consumption, 10% of east coast use) for a period of 25 years. The original capital cost of the project was estimated at $7.5 billion, including Soviet ruble costs equivalent to about $1 billion. The price of the gas was to be negotiated, assuming that it would be competitive with other US sources of supply.

The consortium had hoped Export-Import Bank financing would be available for a major part of the project, but Congressional action in 1974* eliminated this possibility. However, at Soviet urging West European financing and equipment has been arranged to revive the project. Total project costs are now estimated to exceed $10 billion, requiring foreign credits of $7 billion to be provided by France, West Germany, and possibly the United Kingdom. Pipe and equipment for the project, as well as the financing, will now come from Europe rather than from the United States. France will receive one-fourth of the LNG, and the remaining 40 million cmd would be delivered to the United States if Federal Power Commission (FPC) approval can be obtained for import of the gas at the proposed price.

Export-Import Bank financing in Soviet energy projects is now limited to a maximum of $300 million annually and then only with Congressional approval.

During negotiations in January 1976, no agreement on price was reached, but Soviet officials plan to recommend that the project proceed, despite their concern that the US government may not approve import of this gas. No decision has been made on the question of who shall own and/or control the 20 LNG tankers to be built, although the Soviets insist on having control of some of them. If Soviet supporters of the project win governmental approval, they plan to sign a general contract in June. During the remainder of the year contracts with West European partners can be arranged for the financing and for supplying equipment. The US consortium will try to get FPC approval for importing the LNG in 1977 so that actual work on North Star would begin in 1978. The consortium hopes that deliveries could then begin in 1981, and that the full rate could be achieved by 1983. The US government, while encouraging the consortium to continue discussions with the Soviets, has not officially approved the project.

Yakutsk

This scheme involves US-Japan-USSR cooperation in exploiting natural gas deposits near Yakutsk in the Soviet Far East. The US consortium in the negotiations comprises El Paso Natural Gas, Occidental Petroleum, and Bechtel Corporation. Originally western investment was to total $4-$5 billion for exploration and development of gas resources, transport of gas by a 3,500 kilometer pipeline to an LNG plant near Nakhodka, and delivery of 28 million cmd of LNG to both Japan and the US west coast over a 20-year period. The Japanese want to go ahead with the project as part of their energy diversification plans but have insisted on US technical and financial participation.

Unlike the Urengoy deposits in West Siberia, proved reserves of gas in the Yakutsk region are not adequate to meet the venture's requirements. Originally it was anticipated that the cost of confirming the reserves would be $400 million, of which the Soviets were to supply $200 million and Japan and the United States $100 million each. Subsequently, the Soviets claimed that they had made satisfactory progress in their exploration work and could reduce the amounts of financing sought from the United States and Japanese partners to $25 million each. Formal signing of loan agreements was made in late March and at least 2-3 years will be required to complete exploratory work.

The US consortium has not decided whether to enter into the expensive development phase of the project because of Export-Import Bank financing limitations. It is not definite that the Japanese would go it alone if the United States backs out of the project.

Appendix D

Statistical Tables

Table 1

USSR: Production of Crude Oil and Natural Gas

Year	Crude oil[1]		Natural Gas		
	Million Metric Tons	Million b/d[2]	Billion Cubic Meters	Million Cubic Meters/Day	Million b/d of Oil Equivalent[3]
1960	147.9	2.96	45.3	123.8	0.77
1965	242.9	4.86	127.7	349.8	2.16
1970	353.0	7.06	197.9	542.3	3.35
1971	377.1	7.54	212.4	581.9	3.60
1972	400.4	8.01	221.4	604.9	3.75
1973	429.0	8.58	236.3	647.5	4.00
1974	458.9	9.18	260.6	713.8	4.42
1975	490.7	9.81	289.3	792.6	4.90
1976 Plan	520	10.4	313	855.2	5.30
1980 Plan	620-640	12.4-12.8	400-435	1,093-1,188	6.78-7.37

[1] Including gas condensate.
[2] One metric ton equals 7.3 barrels.
[3] One million cubic meters of Soviet gas has a calorific value equivalent to that of about 6,180 barrels of oil.

Table 2

USSR: Estimated Production and Consumption of Primary Energy

Quantity in million b/d of oil equivalent

Source of Energy	1965		1970		1974		1975		1980	
	Quantity	Percent	Quantity	Percent	Quantity	Percent	Quantity	Percent	Quantity	Percent
Production										
	14.06	100.0	17.87	100.0	21.73	100.0	23.07	100.0	28.4	100.0
	5.76	41.0	6.06	33.9	6.72	30.9	6.85	29.7	7.8	27.5
	4.86	34.5	7.06	39.5	9.18	42.3	9.81	42.5	11.8	41.5
al gas	2.16	15.4	3.35	18.8	4.42	20.3	4.90	21.3	6.7	23.6
lectric power	0.47	3.3	0.64	3.6	0.64	2.9	0.63	2.7	0.8	2.8
r power	Negl.	Negl.	0.02	0.1	0.08	0.4	0.11	0.5	0.5	1.8
[4]	0.81	5.8	0.74	4.1	0.69	3.2	0.77	3.3	0.8	2.8
Consumption										
	12.55	100.0	15.80	100.0	19.20	100.0	20.24	100.0	24.9	100.0
	5.51	43.9	5.83	36.9	6.50	33.9	6.65	32.8	7.5	30.1
	3.62	28.8	5.23	33.1	6.95	36.2	7.36	36.4	9.4	37.8
al gas	2.15	17.1	3.36	21.3	4.38	22.8	4.78	23.6	6.0	24.1
lectric power	0.46	3.7	0.62	3.9	0.60	3.1	0.57	2.8	0.7	2.8
r power	Negl.	Negl.	0.02	0.1	0.08	0.4	0.11	0.6	0.5	2.0
[4]	0.81	6.5	0.74	4.7	0.69	3.6	0.77	3.8	0.8	3.2

ding gas condensate.
peat, fuelwood.

Table 3

USSR: Estimated Oil[1] Supply and Demand

Million b/d

	1965	1970	1974	1975	1976	1980
Supply	4.90	7.15	9.29	9.96	10.5	12.1
Domestic production	4.86	7.06	9.18	9.81	10.4[2]	11.8[3]
Imports	0.04	0.09	0.11	0.15	0.1	0.3
Demand	4.90	7.15	9.29	9.96	10.5	12.1
Domestic consumption	3.62	5.23	6.95	7.36	7.8[4]	9.4[4]
Available for export	1.28	1.92	2.34	2.60	2.6	2.7
To Eastern Europe	0.45	0.81	1.18	1.26	1.3	1.5
To other Communist countries	0.13	0.20	0.26	0.29	0.3	0.3
To the Non-Communist countries	0.70	0.91	0.90	1.05	1.0	0.9
Of which:						
For hard currency	0.47	0.64	0.62	0.77	0.8	0.7

[1]Including gas condensate.
[2]Planned figure, which probably can be achieved.
[3]Plan calls for production of 12.4-12.8 million b/d.
[4]Assuming average annual rates of increase in domestic consumption of about 5% during 1976-80.

Table 4

USSR: Drilling for Oil and Gas

Million meters

Year	Exploratory Drilling	Development Drilling	Total
1960	4.02	3.69	7.71
1965	5.57	5.15	10.72
1967	5.80	5.91	11.71
1970	5.15	6.74	11.89
1971	5.25	6.88	12.13
1972	5.14	7.58	12.72
1973	5.22	8.41	13.63
1974	5.36	8.90	14.26
1975 Est.	N.A.	N.A.	15.00

Table 5

USSR: Estimated Natural Gas Supply and Demand

Million cubic meters per day

	1965	1970	1974	1975	1976	1980
Supply	349.8	552.0	746.5	826.6	882	1,106
Domestic Production	349.8	542.3	713.8	792.6	847[1]	1,066[2]
Imports	....	9.7	32.7	34.0	35	40
Demand	349.8	552.0	746.5	826.6	882	1,106
Domestic consumption	348.7	534.0	708.0	773.6	812	946
Exports	1.1	9.0	38.5	53.0	70	160
To Eastern Europe	1.1	6.4	23.4	31.0	35	90
To Western Europe	....	2.6	15.1	22.0	35	70
Net Trade	1.1	—0.7	5.8	19.0	35	120

[1]Plan calls for production of about 313 billion cubic meters or 855 million cubic meter/day.
[2]Plan provides for an output of 400 to 435 billion cubic meters, or 1,093 to 1,188 million cubic meter/day.

Table 6

USSR: Reserves of Natural Gas,[1] as of 1 January

Billion cubic meters

Region	1965	1970	1974
Total	3,220	12,100	22,500
West Siberia	315	7,116	14,100
East Siberia	91	439	700
European USSR	1,771	2,583	4,400
Central Asia and Kazakhstan	1,043	1,962	3,300

[1]$A+B+C_1$ reserves. Referred to as "explored" reserves in Soviet literature and approximately equivalent to proved and probable reserves by US definition.

Table 7

USSR: Quality of Crude Oils from Major Producing Fields

Characteristics	Samotlor	Romashkino	Mukhanovo	Tuymazy	Arlan	Uzen
...administration	Nizhnevartovsk	Tatar	Kuybyshev	Bashkir	Bashkir	Mangyshlak
...region	West Siberia	Urals-Volga	Urals-Volga	Urals-Volga	Urals-Volga	Central Asia
API	35	33	34-35	34	27-30	33-34
...eight percent	0.9	1.6	1.2-1.8	1.4	2.7-3.4	0.1-0.2
	Intermediate	Intermediate	Intermediate	Intermediate	Intermediate	Paraffinic
	5-15	0	18	—22	15	86-90
...ume, percent:						
...& naptha	30	24	25	26	20	15
...distillates	8	6	5	8	6	7
...distillate	22	20	25	20	20	15
...& residuum	38	48	43	44	52	61
& ...	2	2	2	2	2	2

Table 8

USSR: Production of Crude Oil,[1] by Region

Million b/d

	1965	1970	1971	1972	1973	1974	1975[2]	1980[3]
...tal	4.86	7.06	7.54	8.01	8.58	9.18	9.81	12.6[4]
...Urals-Volga	3.48	4.17	4.23	4.31	4.40	4.44	4.48	3.7
...West Siberia	0.01	0.63	0.90	1.25	1.75	2.33	2.96	6.1[4]
...Central Asia	0.28	0.60	0.68	0.72	0.77	0.80	0.82	1.0
...South Caucasus	0.41	0.68	0.72	0.69	0.59	0.53	0.50	0.4
...Azerbaydzhan SSR	0.43	0.40	0.38	0.37	0.36	0.35	0.34	0.3
...Ukrainian SSR	0.15	0.28	0.29	0.29	0.28	0.27	0.26	0.2
...Komi ASSR	0.04	0.11	0.12	0.13	0.13	0.14	0.16	0.5
...Belorussian SSR	Negl.	0.08	0.11	0.12	0.14	0.16	0.18	0.3
...Far East	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
...Other	0.01	0.06	0.06	0.08	0.11	0.11	0.06	0.05

...luding gas condensate.
...timated.
...Planned.
...Midpoint of range of planned output.

Table 9

USSR: Production of Natural Gas, by Region

Million cubic me

	1965	1970	1971	1972	1973	1974	1975[1]
Total	349.8	542.3	581.9	604.9	647.5	713.8	792.6
Central Asia	49.0	131.7	148.1	162.8	196.0	226.0	257.4
Ukrainian SSR	107.9	166.8	177.0	184.1	186.6	187.2	188.0
North Caucasus	110.4	104.8	99.1	82.1	70.8	68.0	65.1
West Siberia	9.0	26.5	26.5	31.1	45.0	67.7	103.0
Komi ASSR	2.2	17.0	27.5	36.4	38.2	46.7	48.1
Azerbaydzhan SSR	17.0	15.0	15.9	18.7	22.9	24.9	27.2
Urals-Volga and other	54.3	80.5	87.8	89.7	88.0	93.3	103.8

[1] Estimated.
[2] Planned.
[3] Mid-point of range of planned output.

Table 10

USSR: Estimated Oil Refining Capacity, by Region, 1975

	Primary Distillation Capacity, Thousand b/d	Percent of Total
Total	8,000	100
European USSR and North	2,600	33
Major refineries:		
Polotsk	580	....
Kirishi	480	....
Gorkiy	410	....
Ryazan	400	....
Mozyr	240	....
Urals-Volga	2,100	26
Major refineries:		
Ufa	480	....
Kuybyshev	350	....
Perm	270	....
Volgograd	240	....
Syzran	230	....
Caucasus	1,400	18
Major refineries:		
Baku	750	....
Groznyy	500	....
Siberia and Far East	1,000	12
Major refineries:		
Angarsk	530	....
Omsk	240	....
Ukraine	500	6
Major refinery:		
Kremenchug	240	....
Central Asia	400	5
Major refinery:		
Krasnovodsk	150	....

Table 11

USSR: Estimated Production of Petroleum Products

Million b/d

	1965	1970	1974	1975
Total	3.50	5.00	6.70	7.20
Gasoline	0.73	1.03	1.45	1.55
Kerosine[1]	0.35	0.42	0.50	0.53
Diesel fuel	0.98	1.45	1.90	2.05
Lubricating oil	0.13	0.18	0.25	0.26
Residuals and others[2]	1.31	1.90	2.60	2.81

[1] Including jet fuel.
[2] Including residual fuel oil, asphalt, wax, petroleum coke, and the like.

Table 12

USSR: Apparent Consumption of Petroleum Products

Million b/d

	1965	1970	1974	1975
Total[1]	3.13	4.45	6.00	6.45
Gasoline	0.70	0.98	1.33	1.40
Kerosine	0.33	0.38	0.45	0.50
Diesel fuel	0.83	1.22	1.58	1.70
Lubricating oils	0.13	0.18	0.24	0.25
Residuals and others	1.14	1.69	2.40	2.60

[1] Lower totals for apparent consumption than shown in Table 3 result from inclusion of losses of crude oil from wellhead to refinery and deduction of gas and loss in the refining process.

Table 13

USSR: Transport of Crude Oil and Petroleum Products[1]

Million b/d

Year	Pipeline	Rail	River	Total
1965	4.51	4.44	0.50	9.45
1970	6.80	6.06	0.67	13.53
1971	7.05	6.46	0.70	14.21
1972	7.77	6.81	0.67	15.25
1973	8.43	7.21	0.68	16.32
1974	9.14	7.59	0.76	17.49
1975	9.94	N.A.	N.A.	N.A.

[1] Excluding movement by tank truck; data not available.

Table 14

USSR: Oil and Gas Pipeline Network

Thousand Kilometers

Year	Crude Oil and Petroleum Products	Natural Gas
1965	28.2	41.8
1970	37.4	67.5
1971	41.0	71.5
1972	42.9	77.7
1973	47.2	83.5
1974	53.0	92.1
1975	57.5	99.4

Table 15

USSR: Summary of Oil Trade

Million b/d

	Crude Oil	Petroleum Products	Total
Exports			
1965	0.87	0.41	1.28
1970	1.34	0.58	1.92
1971	1.50	0.61	2.11
1972	1.52	0.62	2.14
1973	1.71	0.67	2.38
1974	1.61	0.73	2.34
1975 Est	1.86	0.74	2.60
Imports			
1965	....	0.04	0.04
1970	0.07	0.02	0.09
1971	0.10	0.03	0.13
1972	0.16	0.03	0.19
1973	0.26	0.03	0.29
1974	0.09	0.02	0.11
1975 Est	0.13	0.02	0.15

Table 16

USSR: Foreign Trade in Oil[1]

Thousand b/d

	1965	1970	1974	1975	1980[2]
Exports	1,280	1,920	2,340	2,600	2,700
To Communist countries	580	1,010	1,440	1,550	1,800
Eastern Europe	450	805	1,180	1,260	1,500
Cuba	95	120	155	160	200
Yugoslavia	20	55	75	90	70
Other	15	30	30	40	30
To Non-Communist countries	700	910	900	1,050	900
Western Europe	455	760	750	880	700
Finland	90	155	180	175	N.A.
France	30	50	30	70	N.A.
Italy	145	205	135	135	N.A.
Sweden	55	95	60	70	N.A.
West Germany	60	125	125	150	N.A.
Other	75	130	220	280	N.A.
Near and Middle East	45	60	30	45	20
Egypt	15	30	4	5	N.A.
Greece	25	20	20	38	N.A.
Other	5	10	6	2	N.A.
Africa	20	25	23	20	30
Ghana	12	10	6	3	N.A.
Morocco	8	14	13	13	N.A.
Other	....	1	4	4	N.A.
Asia	125	60	52	60	30
India	28	5	20	25	N.A.
Japan	78	54	25	26	N.A.
Other	19	1	7	9	N.A.
Latin America	55	....	25	30	20
Argentina	8	....	....	....	....
Brazil	47	....	25	30	20
North America	....	5	20	15	100
Canada	....	....	3	5	....
United States	....	5	17	10	100
Soviet exports to hard currency countries	470	640	620	770	700
	Million US $				
Hard currency earnings	230	405	2,560	3,180	N.A.
	Thousand b/d				
Imports	40	90	110	150	300
Iraq	....	....	78	108	N.A.
Libya	....	....	....	....	N.A.
Egypt	....	40	3	5	N.A.
Syria	....	....	7	....	N.A.
Romania[3]	30	11	9	10	N.A.
Other	10	39	13	27	N.A.

[1]Including crude oil and petroleum products.
[2]Estimated.
[3]Petroleum products only.

Table 17

USSR: Foreign Trade in Natural Gas

Million cubic m

	1965	1970	1974	1975
Exports	1.1	9.0	38.5	53.0
To Eastern Europe	1.1	6.4	23.4	31.0
Bulgaria	....	....	0.8	3.2
Czechoslovakia	....	3.7	8.9	10.1
East Germany	....	....	7.9	9.1
Hungary	....	....	....	1.7
Poland	1.1	2.7	5.8	6.9
Romania	....	....	....	....
To Western Europe	....	2.6	15.1	22.0
Austria	....	2.6	5.8	5.1
Finland	....	....	1.2	2.0
France	....	....	....	....
Italy	....	....	2.2	6.4
West Germany	....	....	5.9	8.5
Imports	....	9.7	32.7	34.0
Afghanistan	....	7.1	7.8	7.8
Iran	....	2.6	24.9	26.2
Net Trade	1.1	−0.7	5.8	19.0

[1] Estimated.

OPTION-L FORM NO. 10
JULY 1973 EDITION
GSA FPMR (41 CFR) 101-11.6

(LOU WHEN ENCLOSURES ARE REMOVED)

UNITED STATES GOVERNMENT

Memorandum

TO : See Distribution DATE: 10/27/77

FROM : POL - John D. Stempel

SUBJECT: Annual CERP Report on Relations with Communist Countries

The annual report on Iran's relations with Communist countries (CERP 0002) is due in Washington November 15, 1977. In order to meet this deadline, the airgram should be in the November 11 pouch. Last year the Embassy was THREE months late with its contribution. We'd like to improve on that substantially this year.

The nature of this report requires coordination with various elements of the Mission as well as the Consulates, which may have more detailed knowledge of Communist country activities in their respective districts. The Political and Political/Military sections will prepare those sections of the report concerning political and pol/mil issues, local Communist Party membership, and diplomatic/consular relations. USIS prepares the sections concerning cultural and educational exchanges. The Economic Section will prepare material on economic ties. Consulates may comment or report on any portion of the report's coverage.

Enclosures: A) LOU State 249989
B) SECRET NOFORN State A-7, Jan. 12, 1977 (for Isfahan only)

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SUBJECT: CERP 002, RELATIONS WITH COMMUNIST COUNTRIES

REF: A) A-6884, AUG. 10, 1973, B) STATE 249135 76

1. THIS MESSAGE UPDATES BASIC DEPARTMENT GUIDANCE, CONTAINED IN REF. A, FOR THE PREPARATION OF PART I AND IV OF CERP 002. POSTS ARE REMINDED THAT THE DUE DATE REMAINS NOVEMBER 15 FOR RECEIPT OF THE REPORT IN THE DEPARTMENT. SUBMISSIONS AFTER THAT DATE LIMIT THE USEFULNESS OF THE REPORT TO THE END-USERS.

2. PART I, "APPRAISAL OF POLITICAL/ECONOMIC/MILITARY RELATIONS," PROVIDES A MAJOR INPUT INTO THE ANNUAL PUBLICATIONS, "AID AND TRADE ACTIVITIES OF COMMUNIST COUNTRIES IN LESS DEVELOPED AREAS OF THE FREE WORLD." IN FULFILLING THE REQUIREMENTS OF THIS SECTION OF CERP 002, POSTS SHOULD KEEP IN MIND THAT THE DEPARTMENT PREFERS A CONCISE SUMMARY OF DATA AND EVENTS RATHER THAN AN EXHAUSTIVE STUDY OF ALL

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AVAILABLE MATERIAL. CERP 002, OF COURSE, IS NOT INTENDED TO REPLACE ALERT REPORTING ON SIGNIFICANT POLITICAL, ECONOMIC, MILITARY OR CULTURAL DEVELOPMENTS. IMPORTANT EVENTS WITH MAJOR IMPLICATIONS SHOULD BE INTERPRETED AND REPORTED AS THEY DEVELOP.

3. INFORMATION SUBMITTED UNDER PART I MAY CARRY A CLASSIFICATION UP TO AND INCLUDING SECRET/NO FOREIGN DISSEM. PLEASE IDENTIFY THE CLASSIFICATION OF EACH PARAGRAPH WHERE IT DIFFERS FROM THE OVERALL REPORT CLASSIFICATION. THE LOWER THE CLASSIFICATION THE BETTER. POSTS MAY FIND IT HELPFUL TO REFER TO INTELLIGENCE HANDBOOK ER 77-10138, "COMMUNIST AID TO LESS DEVELOPED COUNTRIES OF THE FREE WORLD, 1976" OF APRIL 1977 IN PREPARATION OF PART I.

4. DURING THE PAST YEAR SEVERAL POSTS HAVE OBTAINED VALUABLE INFORMATION ON SOVIET ECONOMIC PROGRAMS DIRECTLY FROM SOVIET EMBASSY OFFICIALS IN THE HOST COUNTRY WHO WERE WILLING TO EXCHANGE INFORMATION ON AID PROGRAMS. DEPENDING UPON THE CONDITIONS AND CONSTRAINTS IN HOST COUNTRIES, OTHER POSTS MAY ALSO WISH TO ADOPT THIS PRACTICE AND APPROACH SOVIET AND OTHER COMMUNIST COUNTRY REPRESENTATIVES DIRECTLY.

5. PART I, "APPRAISAL OF POLITICAL/ECONOMIC/MILITARY RELATIONS" REQUIRED ONLY FROM ABIDJAN, ABU DHABI, ACCRA, ADDIS ABABA, ALGIERS, AMMAN, ANKARA, ATHENS, BAMAKO, BANJUL, BISSAU, BANGUI, BOGOTA, BRASILIA, BUENOS AIRES, BUJUMBURA, CAIRO, CARACAS, COLOMBO, CONAKRY, COTONOU, DACCA, DAKAR, DAMASCUS, DAR ES SALAAM, JAKARTA, FREETOWN, GEORGETOWN, ISLAMABAD, KABUL, KATHMANDU, KHARTOUM, KIGALI, KINGSTON, KINSHASA, KUALA LUMPUR, KUWAIT, LAGOS, LA PAZ, LIBREVILLE, LIMA, LOME, LUSAKA, MANAMA, MOGADISCIO, MAPUTO, MEXICO CITY, MONROVIA, MONTEVIDEO, NAIROBI, N'DJAMENA, NEW DELHI, NIAMEY, NOUAKCHOTT, OUAGADOUGOU, PORT LOUIS, QUITO, RABAT, RANGOON, SANA, SANTIAGO, SAN JOSE, SINGAPORE, ANTANANARIVE, TEHRAN, TRIPOLI, TUNIS, VALLETTA, YAOUNDE.

6. BRIEFLY ANALYZE AND APPRAISE, WITHIN THE CONTEXT OF US POLICY INTERESTS, THE POLITICAL, ECONOMIC AND MILITARY RELATIONSHIPS THAT DEVELOPED DURING THE YEAR BETWEEN THE HOST COUNTRY AND THE COMMUNIST WORLD. THIS SUMMARY OVERVIEW SHOULD TOUCH ON CHANGES IN THE LEVEL, FOCUS, TRENDS, AND OUTLOOK OF COMMUNIST ACTIVITY. IF RELEVANT TO THE COUNTRY AND WHERE DATA IS AVAILABLE, THE FOLLOWING SPECIFIC INFORMATION ON COMMUNIST ECONOMIC AND MILITARY ASSISTANCE PROGRAMS IS REQUESTED. (THIS DATA SHOULD BE SUBMITTED IN TABULAR FORM WHERE POSSIBLE).

ECONOMIC ASSISTANCE:

-- --OVERALL US DOLLAR VALUE AND LIST OF PROJECTS TO BE
-- FINANCED UNDER NEW COMMUNIST AID AGREEMENTS CONCLUDED
-- DURING THE YEAR.

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-- --PROJECT AND PROGRAM PROGRESS UNDER OLD AND NEW AID
-- AGREEMENTS, INCLUDING ESTIMATED DOLLAR VALUE OF AID
-- DELIVERIES DURING THE YEAR.
--
-- --NUMBER OF COMMUNIST ECONOMIC TECHNICIANS IN THE HO
-- COUNTRY, BROKEN DOWN BY COMMUNIST COUNTRY OF ORIGI
-- AND, IF POSSIBLE, BY PROJECT.
--
-- --NUMBER AND SPECIALTIES OF OTHER COMMUNIST TECHNICI
-- NOT FINANCED BY AID CREDITS, SUCH AS DOCTORS, TEAC
-- GOVERNMENT ADVISORS, ETC.
--
-- --SALARIES PAID TO COMMUNIST TECHNICIANS BY HOST
-- COUNTRY.
--
-- --NUMBER OF LDC PERSONNEL DEPARTING FOR COMMUNIST CO
-- TRIES FOR SHORT-TERM TECHNICAL TRAINING BROKEN DOW
-- BY COMMUNIST COUNTRY OF DESTINATION, SPECIALTIES,
-- DURATION OF TRAINING.

MILITARY ASSISTANCE:

-- --US DOLLAR VALUE OF NEW COMMUNIST MILITARY ASSISTAN
-- AGREEMENTS DURING THE YEAR AND KINDS OF EQUIPMENT
-- BE PROVIDED. DETAILS ON VALUE AND TYPE OF MILITAR
-- EQUIPMENT DELIVERIES DURING THE YEAR.
--
-- --NUMBER OF COMMUNIST MILITARY TECHNICIANS AND ADVIS
-- IN HOST COUNTRY.
--
-- --NUMBER OF LDC PERSONNEL GOING TO COMMUNIST COUNTRI
-- FOR MILITARY TRAINING.
--
-- --THE COST TO HOST COUNTRY OF COMMUNIST MILITARY
-- TECHNICAL SERVICES AND TRAINING.

TRADE:

-- --THE VOLUME OF EXPORTS TO AND IMPORTS FROM EACH
-- COMMUNIST COUNTRY (AND COMPOSITION).
--
-- --THE TERMS O. NEW AND EXISTING TRADE AGREEMENTS WIT
-- COMMUNIST COUNTRIES INCLUDING THEIR DURATION AND
-- SETTLEMENT ARRANGEMENTS (HARD CURRENCY OR BILATERA
-- CLEARING ACCOUNTS).

7. ASSESS THE SUCCESSES AND FAILURES OF COMMUNIST PRO-
GRAMS--SUCH AS PROJECT IMPLEMENTATION DIFFICULTIES,

NEGOTIATION FAILURES AND SUCCESSES--AND THE SIGNIFICANC
AND ACCOMPLISHMENTS OF INTERGOVERNMENTAL COMMISSIONS.

8. IN ADDITION TO PART IV A REQUIREMENTS CONTAINED IN
REF. A ALSO REPORT:

-- --THE NUMBER OF NEW ACADEMIC STUDENTS DEPARTING FOR
-- TRAINING IN EACH COMMUNIST COUNTRY DURING THE YEAR.
--
-- --THE NUMBER RETURNING HOME PERMANENTLY.
--
-- --THE TOTAL NUMBER OF STUDENTS FROM THE LDC PRESENT IN
-- EACH COMMUNIST COUNTRY AT THE END OF THE YEAR. VANCE
--

RM/R	REP	AF
ARA	EUR	FE
NEA	CU	INR
E	P	IO
L	FBO	AID
AGR	COM	FRB
INT	LAB	TAR
TR	XMB	AIR
ARMY	CIA	NAVY
OSD	USIA	NSA

ECON5
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POL2
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DEPARTMENT OF STATE

AIRGRAM

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A-7 NO. | SECRET NOFORN | HANDLING INDICATOR

TO : Department of State

INFO: AmEmbassy BUCHAREST, BUDAPEST, ISLAMABAD, KABUL, KUWAIT, LONDON, MOSCOW, PRAGUE, SOFIA, WARSAW; AmConsul HONG KONG, ISFAHAN, SHIRAZ, TABRIZ; CINSTRIKE EUCOM; USLO PEKING; USINT BAGHDAD

JM
File POL

FROM: AmEmbassy TEHRAN DATE:January 12, 1977

E.O. 11652: N/A
TAGS: ECRP, PFOR, ETRD, XR, IR
SUBJECT: Iran's Relations with Communist Countries - CERP 0002
REFS: (A) 75 Tehran A-238, (B) 76 State 249135

SUMMARY: (BEGIN CONFIDENTIAL) Increased tensions marked Iran's relations with the Soviet Union, and this was reflected in greater warmth in Sino-Iranian ties in 1976. Iranian relations with the rest of the Communist world remain as described last year--lackluster in substance but impressive in form--i.e., almost exclusively limited to visits. Overall trade with the Communist Bloc expanded little in year 2534 A/ due to decreases in imports from the USSR and China. But trade increased dramatically with Eastern European countries and economic protocols signed in 1976 with almost all Communist countries portend an increase in trade and economic and technical assistance, but not commensurate with Iran's increasing involvement with Western countries, notably the United States, France and Western Germany. Iran extended $680 million in pre-import credits to three Eastern European countries and conducted most trade on a "clearing account" basis. The Soviets added an aluminum plant project to its already impressive list of economic projects in Iran. An arms agreement achieved with the USSR in November assures a continuing Soviet military presence by equipment and technicians. Iran broke relations with Cuba over Fidel Castro's meeting in Europe with an Iranian Communist leader, but relations with smaller Communist states remained otherwise stable. Cultural relations with the Bloc appear to have been at a less conspicuous and effective level in 1976. END SUMMARY

APPENDICES:
A. Soviet Presence in Iran
B. Table I - Iran's trade with Communist countries during the past three years, 2532-2534 (March 21, 1973-March 20, 1976
C. Table II -Iran's trade (by major commodity) with principal Communist trading partners during the year 2534

A/ Year Ending March 20, 1976

SECRET NOFORN

FORM DS-323 4-62

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Drafted by: Editor:EXC:CDTaylor:dd
Contents and Classification Approved by: E/C:DEWestley
Clearances: Contributors: POL:JDStempel/JWMartin; ECON:WWarnell/GBakhtian (Tables); POL/M:RAMartin; USIS:WFDeMyer

I. Appraisal of Politico-Economic Relations

THE USSR

The change in Iran's politico-economic relations with the Communist world since last year's report (ref Airgram) was the worsening of political relations with the Soviet Union as a result of growing Iranian suspicion that the USSR is putting political pressure on Iran because of its close ties with the United States. This appeared to be ameliorated as the year ended as a result probably of Iran's return of a would-be Soviet pilot defector who landed his (civilian) plane in Iran. Correspondingly, Iran's relations with China have improved slightly and both Iranian media and government officials speak approvingly of the fact that China supports Iran's Persian Gulf security policies, its proposal for an Indian Ocean Zone of Peace, and a nuclear free area in the Middle East.

The Soviets give the appearance of being seriously concerned at Iran's growing ties to arms purchases from the United States. Despite continued Iran-Soviet cooperation in the economic area--a third ecological agreement on the Caspian was signed in December 1975, Finance Minister Ansary's visit to Moscow in September 1976 was followed by a $3 billion Soviet-Iranian five-year trade agreement in October 1976, and the 7th Session of the Irano-Soviet Commission in mid-November--Soviet political commentators throughout the summer and fall of 1976 attacked Iran as a puppet of the United States and a tool of imperialism. At the 25th Soviet Party Congress, Brezhev failed to mention Iran at all (an omission noticed by the Iranians), and in May the Soviet Ambassador protested Iranian media treatment linking the terrorist threat in Iran to the Soviet Union. (Pictures of Russian leaders had been found when police cleaned out a terrorist hideout.) The Iranians, on the other hand, expressed their concern over the build-up of the Soviet Pacific Fleet and saw the attacks on Iran at the Colombo Non-aligned Conference as being Soviet inspired (Tehran 9091 and 8931). In addition, considerable Iranian publicity has been given to a purported 1976 Soviet arms agreement with Iraq which would provide that country with more weapons than Iran is buying from all Western countries. (Confirmation of the agreement or its size is so far lacking.)

BEGIN UNCLASSIFIED: These political irritations have not interfered with an expansion of bilateral trade over the past five years. The $1 billion five-year trade exchange originally envisaged resulted in $1.6 billion and will double under the terms of the recently concluded agreement. About $1 billion of the 1976 agreement will be in Iranian gas exports to the Soviet Union, chiefly as part of Iran's previous commitments. The other $2 billion will involve Iranian manufactured goods and Soviet machinery, iron, steel, chemicals, wood, cement and trucks to be exchanged on a barter basis. Bilateral trade in year 2534 (ended March 20,

1976), at $402 million, was actually off 15.5 percent from the previous year. Exports to the USSR, at $232 million, were up $28 million and natural gas ($120m) accounted for over half the value. Imports from the USSR were, however, off 37.6 percent, due principally to a 57 and 70 percent respective decline in iron and steel and machinery and parts, which together accounted for half of 2533's imports. Imports related to the following projects should be producing a substantial increase in this Iranian year's imports.

BEGIN LIMITED OFFICIAL USE: Soviet economic and technical assistance involvement in the Iranian economy continues, but lacking data it is difficult to determine if this absolute increase is also a relative one to Western influence. The Embassy's 75/A-169 reported concerning the current expansion of Isfahan's Aryamehr Steel Plant from 750,000 to 1.9 million tons' capacity. This Soviet commitment represents by far the largest in terms of personnel and value. Appendix I, provided by SRF, details the Soviet presence in Iran by location and affiliation. Soviet involvement in terms of technician and, in some cases equipment (credit extended unknown), continues with regard to five cold storage units, fisheries project, railroad, electrification, grain elevators, prefab housing, mining, power stations and vocational training schools. The training institute operated in conjunction with the Aryamehr Steel Mill is staffed by Soviets and Iranians and in late 1975 200 of the 600 trainees were Pakistanis related to a Soviet steel project there. New or additional projects mentioned in connection with the Seventh Session of the Irano-Soviet Commission held in Tehran in November were: the second gas trunk line (IGAT II), the 1,260,000 kilowatt thermal power generating plant in Ahwaz (construction started), agreement for construction of a large thermal power plant in Isfahan and hydroelectric complex at Khoda-Afarin on the Arras River and electrification of the Tehran/Jolfa/Tabriz railroad. As a result of the trilateral gas agreement signed in 1975 (75 Tehran 11640) a design/engineering contract was signed and a Soviet role is possible in the pipeline construction as well as the supply of compressors. In November, an agreement was signed between Barite Iran and Tsvetmetpromexport to establish a 500,000 tons per year capacity aluminum plant (76 Tehran 11848) to cost $600 million. In December the Iranian press announced an agreement by USSR to assist the GOI's Industrial Development and Renovation Organization (IDRO) to establish a $1 billion industrial estate at Asfarayin; Soviet machine and equipment are to be paid by Iranian gas under the trilateral swit agreement.

Bilateral trade and, by best information, most if not all technical assistance are handled under the "clearing account" system operated by the Central Bank of Iran (CBI). A CBI official said that in late

October the account was some $60 million to the USSR's credit. A $7 million imbalance is supposed to trigger a hard currency correction, but the USSR reportedly has frequently permitted Iran's debt to be offset by its natural gas exports. In October the CBI was letting the debt ride since the agreement provides only a 2 percent interest payment and the Soviets were not pressing the issue.

SOVIET-IRANIAN MILITARY RELATIONS

BEGIN SECRET NOFORN: Of principal interest is the new GOI-USSR arms deal concluded towards the end of November 1976. The U. S. dollar value of the agreement is around $528 million and the GOI agreed to pay in hard currency. No payment is to be made until after deliveries take place, and payment will be in sixteen quarterly installments. A gas/oil barter arrangement will be involved in the out years. Deliveries of some items will begin in December 1976, and delivery of all items will be completed in 1979. Deliveries will be from new production.

The kinds of equipment to be provided are as follows: (A) Armored personnel carriers (APC's). These are reported to be the Soviet BMP-1, and feature a pair of access doors to the rear of the vehicle as well as a pair of doors in the roof. Each vehicle has a bore-less 73mm gun, which fires a finned projectile. Each also has a small anti-tank rocket, similar to the SS-11, mounted on top. The APC has a crew of three (commander, driver, and gunner), and usually a carrier crew of eight infantrymen. (B) The "Strela" (SA-7) shoulder-borne SAM in the 2M version, with a new cold IR. (C) Tank transporters. Five hundred are being acquired, and they may be the MAZ tank transport . (D) 130mm artillery pieces with a large amount of ammunition. (E) Quad-mount radar-controlled anti-aircraft machine guns. (F) Several inertial navigation tactical vehicles. (G) Spares, simulators, targets and a support line are included, and in the quantities desired.

The Soviet Military Assistance Program in Iran is charged mainly with training Iranians in the use and maintenance of transport and engineering equipment supplied by the USSR to the Imperial Iranian Armed Forces under previous GOI-USSR agreement. It is reported that any additional Russian training personnel providing training under the new agreement would cost at a maximum $1,500.00 per man per month, plus the transportation cost to and from the USSR. At present it is estimated that there are approximately 120 USSR military specialists under the Soviet MAP in Iran. They are assigned to such areas as the Babak Factory (a vehicle maintenance and repair project in the Tehran area), the Isfahan Artillery Center, and the IIGF Logistics Group.

PEOPLES REPUBLIC OF CHINA (PRC) BEGIN CONFIDENTIAL:

Irano-Chinese relations continue to be primarily a function of the GOI's concern with the Soviet Union. Iranian involvement in the Sino-Soviet rivalry consists of discreetly trying to play China off against the Soviet colossus. Symbolic of the growing political harmony between China and Iran was the July 21-August 2 visit of Princess Ashraf to China (Tehran 8085). The Princess was given extended VIP treatment, including the first official visit to Tibet accorded a foreigner since 1949. Many observers saw this visit as a counterbalance to visits of Prime Minister Hoveyda and Crown Prince Reza to Moscow, ant it is clear that Iran has conscientiously attempted to balance its ties with the two great Communist powers over the past year. On the other hand, little of substance has been negotiated on these visits. In connection with a GOI trade mission to China in June, a protocol was signed which set a 30 percent increase in bilateral trade. Iranian exports were identified as oil, chemical products and foodstuffs; China is to sell textiles, paper products, machine tools and steel. At $84.1 million, bilateral trade in 2534 declined 33 percent, a result principally of a drop from $79 to $3 million in Iran's imports of iron and steel products. Iranian exports of $20.4 million in cotton increased total exports from $7.4 to $22.4 million. This trade is likewise on a "clearing account" basis and adjustments are settled in U.S. dollars.

EASTERN EUROPEAN COUNTRIES BEGIN LIMITED OFFICIAL USE:

Official visits to or from Eastern European countries resulted in new trade protocols with Bulgaria, Czechoslovakia, the GDR, Hungary, Poland and Romania; significant disbursements by the GOI of pre-import credits and acceleration of economic/technical collaborations in Iran. All protocols called for significant increases in the level of bilateral trade. Iran holds as a viable option in the event of foreign exchange difficulties a greater reliance on these countries for foodstuffs and manufactures since the trade is under the clearing account mechanism. Bilateral trade with these six countries increased 96 percent in 2534 ($200.5 million to $393.5 million); the unfavorable balance to Iran worsened with the ratio going from 3.4:1 to 5.7:1 in 2534. All these countries again participated in Tehran's annual international trade fair.

BULGARIA: During the Ninth Session of the Irano-Bulgarian Commission for Economic and Technical Cooperation in Sofia, GOI Commerce Minister Taslimi signed a protocol which was essentially restated in the protocol signed shortly thereafter in Tehran during the December visit of Prime Minister Todorov. Apart from a listing of various projects in Iran which would involve Bulgarian collaboration, the notable items included were a target increase in bilateral trade from a 1976 level

of $60 million to $130 million in 1977 and a $150 million GOI credit to establish an agro-complex to export to Iran fresh meat, cheese and eggs over the long-term. There is a possibility of GOI equity in this agro-complex. Czechoslovakia: At $54.8 million, bilateral trade increased 41 percent in 2534, with exports to Iran continuing to consist chiefly of machinery and iron and steel. A June 1976 protocol called for a 55 percent increase in trade to $100 million for the year beginning July 1; Czech manufactures would account for 60 percent of Czech exports. Subsequently, a Czech delegation visited Iran to promote cooperation in agriculture and later Prime Minister Strougal visited Iran with a large economic delegation. The principal development in relations was the November 12 agreement for the Iranian sale of 3.6 billion cubic meters a year of natural gas beginning in 1981; thus, Czechoslavakia joined the trilateral switch arrangement (see 76 Tehran 11575). GDR: The First Meeting of the Joint Commission for Economic, Technological and Scientific Cooperation was held in Berlin in September; Minister of Industry and Mines Najmabodi led the Iranian delegation. The meeting built on the visits to Iran in December 1975 by GDR Council of Ministers Chairman Sindermann (75 Tehran 11767) and in April 1976 by a delegation led by Secretary of State and head of Planning Commission Albrecht. The September protocol called for, inter alia, GDR exports of refrigerated railroad rolling stock, and assisting in building several cold storage facilities in Iran; at the time IDRO signed with GDR's Zeiss for collaboration in the production of precision instruments and microscopes in Iran. Bilateral trade is still insignificant, reaching $12.1 million in 2534. HUNGARY: Foreign Minister Puja visited Iran in February and signed trade and cultural cooperation agreements. (76 Tehran 954) Hungary is to participate in several Iranian agricultural projects. Bilateral trade, at $58.4 million, increased 81 percent in 2534. POLAND: Building on an April visit by Vice Minister of International Trade Kostjewski, Trade and Shipping Minister Olszewski led the delegation to the December joint ministerial meeting. The resulting economic protocol extended the original three-year agreement to one emphasizing cooperation in Iran and third country markets. Polish involvement in Iranian industry includes textiles, shipbuilding, coal mining and petrochemicals. Poland reportedly has imported 250 buses and 20,000 refrigerators from Iran. Iran disbursed $100 million against a pre-import credit (at 6 percent) in 2534 and extended an additional $100 million in 2535. Bilateral trade was still a modest $45 million (up 9 percent) in 2534. ROMANIA: As Iran's most significant Eastern European trading partner, economic relations were commensurately active in the last year. Iran disbursed $420 million against a pre-import loan made at a low 5.25 rate of interest. During a late 1975 visit by President Ceausescu the Shah made a political decision to award all of a $60 million purchase of railroad wagons to Romania (75 Tehran 11785). A May visit by Prime Minister Manescu (76 Tehran 5357) was followed in November by the 12th Session of the

Joint Irano-Romanian Ministerial Commission for Economic and Technical Cooperation in Bucharest. The resulting protocol set a bilateral trade goal of $700 million for 1977 and $1 billion by 1980 involving a broad range of Romanian goods and chiefly Iranian oil for its part. A number of projects were identified for Romanian collaboration in Iran--electric motors, cement plants, soda ash plant expansion and electrification. Excluding oil, bilateral trade increased 149 percent to $177.4 million in 2534, second only to the USSR among Communist countries.

BEGIN CONFIDENTIAL: Ties with lesser Communist powers follow a pattern similar to last year. In January North Vietnam's Deputy Foreign Minister paid a goodwill visit to Iran, but there was no agreement to open diplomatic relations. An agreement for cooperation in the petroleum area was made, but no details are available. In June the press reported that the DRRK would sell 100 rice planters. The protocol signed in mid-1975 did not, as it turned out, produce the controversial $200 credit (76 Tehran 10092). In August Iran's Prime Minister Hoveyda visited Mongolia and came away with a ritual protocol to expand economic trade and scientific and technical cooperation.

BEGIN UNCLASSIFIED: Overall Trade with Communist countries, excluding oil and military goods (details unavailable), increased absolutely in 2534 by 9.7 percent to $880.5 million; imports were up 3.9 percent and Iranian exports up 22.1 percent. But in relative terms, this composite bilateral trade declined. Imports from all Communist countries represented 4.8 percent of total Iranian imports, compared with 8.2 percent in 2533. The relative importance of these countries as Iran's export market increased from 36.3 to 42.6 percent. Details on this trade and principal commodities are presented in the tables in Appendices B and C.

II. Local Communist Party Membership

There is no change in the data submitted in Tehran's A-171 of 1973 and comments provided in refair continue to apply.

III. Diplomatic, Consular, and Trade Mission Relationships with Communist Countries

BEGIN CONFIDENTIAL: Iran broke relations with Cuba on April 7, 1976, over Fidel Castro's well-publicized meeting with Iraj Iskandar, Secretary General of the outlawed Iran Tudeh (Communist) Party. This break was undertaken not only because of the Iskandar-Castro meeting, but to underline the Shah's displeasure with Cuba's role in Angola and the Dhofar Rebellion.

A. Cultural and Educational Exchanges

IN LIMITED OFFICIAL USE: Cultural relations between Iran and the Communist countries are usually characterized by a fairly low level of activity and achievement. In 1976 they were at a somewhat lower level than in previous years.

Cultural and educational exchanges with the Soviets are much more important than those with any other Communist countries, but even these with the Soviet Union are limited in frequency and scope. The Soviets are not permitted to have an important on-going cultural program. The Soviet Cultural Attache has complained to the Embassy's CAO that he sought, but was denied permission, to buy a building for a cultural center, or to rent one, or to improve the modest facilities he has. The program staples are films, Russian language classes which enroll no more than a few score individuals, some of whom are third country nationals, and fairly frequent sports exchanges. It appears that the Soviets are permitted one major cultural event each year, which they try to make a quality production, with maximum media impact. A year ago it was a major exposition of art treasures from the Hermitage Museum in Leningrad which was a great success, artistically and publicitywise. In 1976 there was no comparable event. There was a fairly steady coming and going of sports groups involving the sports most popular in the Bloc countries and in Iran: Soccer, weight-lifting, wrestling and water polo. There was a visit by the USSR's Central Puppet Theater, which played at Roudaki Hall for four days and was well received. A string quartet and a few soloists also played here briefly. A joint Soviet-Iranian committee of scholars, called the Ferdowsi Committee, surfaced in the press for the first time, announcing that it had awarded prizes to two Soviet scholars, one Majidof, who translated the Shahnameh (the great epic poem of the 10th Century Iranian poet Ferdowsi) into Russian, and to Boris Peotrosky, who was rewarded for having researched the origin of Iranian objects in the Hermitage collection."

There was one significant development in educational exchanges. Although there was no change in the pattern of rather modest scholarships offered by the USSR (twelve a year), which are usually not fully subscribed, there was a large number of vocational training exchanges. Statistics obtained "informally" from the Ministry of Science and Higher Education, show the numbers of Iranian students/abroad for the 1976-77 academic year as now 2,162 in a bloc on the chart called "Others", meaning countries other than those listed individually. This category, the Embassy was told, meant Soviet Bloc countries, although the chart does not indicate this. By far the largest number, according to the Ministry official (Mohammad Ali Toussi, Vice Minister of Science and Higher Education--protect) who provided a copy of and comments on this chart, are technicians who work or are scheduled to work in the Soviet-built

steel mill in Isfahan, who went to the Soviet Union for training programs.

It is noteworthy that in 1976 the Chinese did virtually nothing. They did little in 1975, although in 1974 they mounted a rather sizeable and on the whole interesting exhibit of traditional and modern Chinese art at the University of Tehran. Seven Iranian journalists visited China in October, at the invitation of the PRC and were programmed by the New China News Agency.

Relations with the Communist countries of Eastern Europe did not differ markedly in style or scope from those with the Soviet Union. The most numerous exchanges were sports teams. Soccer, wrestling, water polo, and volleyball teams came and went to Poland, Bulgaria, Hungary and Romania. Three puppet theater groups came, one from Bulgaria, two from Romania (one Moldavian, the other an Hungarian-speaking group from Transylvania). Individual artists from East Europe appeared occasionally, and individual musicians, but there was no major event of note. The Ministry of Science and Higher Education either does not have or is unwilling to provide statistics on scholarships for Iranians provided by individual East European countries, although such information undoubtedly exists in agencies of the GOI with which USIS does not have regular liaison.

The Soviet Union and the Eastern European Community countries were, as usual, strong participants in the Tehran Film Festival season (October-November 1976). Eastern European entries--especially from Poland and Czechoslavakia--were strong entries in the annual International Film Festival for Children and Young People, both countries named being award winners. A few bloc country features also competed for awards in the 5th International Film Festival, with top prizes going to Soviet Director Nikita Mikhalkov (for his film "The Slave of Love") and to a Hungarian actress as the best actress. A Soviet film were created little stir, because--probably by GOI order--there was no press publicity, no Persian-language dubbing, and no circulation outside Tehran. Films from these countries still rarely appear in Iranian commercial cinemas. There has been some use of Soviet films on National Iranian Television--particularly ballet movies in color--shown on the NIRT color channel inaugurated in October 1976.

IV. B. Information and Cultural Activities Other Than Exchanges

Communist countries' information activity continued at approximately the same level, most of it generated from the Press Section of the Soviet Embassy, the only bloc country here that has diplomats specializing in informational areas. The Soviets continue to publish and distribute "Akbar" a 50-page, Farsi-language, semi-slick monthly de-

in color. Material in the magazine concentrates overwhelmingly on Russian life and institutions, with only an occasional article having an Iranian angle. Also in Farsi, there is "Peyman" (Message), a literary quarterly put out by the "Iran-Soviet Culture House." The Soviet Embassy's Press Section also produces the standard bulletins, but almost none of it is placed in the local press. Clandestine radio activity was essentially unchanged from last year.

MIKLOS

GBL

Soviet Presence In Iran
November 1976

The total number of slots for official personnel of Soviet Governm ment agencies as established by the Iranian Government is 325. However it is estimated this limit is exceeded in 1976 by at least 25 positions As this figure does not include dependents, the figure of 350 should be doubled for wives and increased by 100 to account for dependent childre which would then bring the total number of official Soviets to 800. So forth below by location and agency is the breakdown of the official Sov Presence in Iran.

Tehran:

Soviet Embassy		
Chancery	71	
Consular Section	7	
Military Attache Office	8	
Office of the Economic Counselor (GKES)	26	
Soviet Commercial Representation	67	
Soviet Hospital	68	
TASS	2	
AEROFLOT	5	
INGOSSTRAKH (Soviet Government Insurance Co.	5	
Russo Iran Bank	5	
IRSOT (Iran-Soviet Joint Stock Private Forwarding Company)	7	
Total in Tehran	271	271

Isfahan:

Soviet Consulate General	19	
Russo-Iran Bank	2	

Rasht:

Soviet Consulate General	10	

Tabriz:

Soviet Commercial Representative	1	
INGOSSTRAKH	1	

Mashad:

INGOSSTRAKH	1	

Bandar-E-Pahlavi:

MORFLOT (Merchant Marine Agency)	4	
IRSOT	7	
Soviet Commercial Representation	2	

Julfa:

IRSOT	6	

Nowshahr:

IRSOT	1	
Total in Tehran	54	54
Grand Total		325

The Soviet Military Assistance Program in Iran is charged mainly with training Iranians in the use and maintenance of the artillery, transport and engineering equipment supplied by the Soviet Union to the Iranian Forces. At present it is estimated there are approximately 120 military specialists under this project assigned to Iran to such areas as the Babak Factory (vehicle maintenance and repair project in the Tehran area), the Isfahan Artillery Center, and the Imperial Iranian Ground Forces Logistics Group. Also under this program is a group of Soviet prefabricated housing specialists located in Tehran, Kermanshah, Ahwaz and Julfa.

The Office of the Economic Counselor, which is attached to the Soviet Embassy but in fact is subordinate to the State Committee for Foreign Economic Relations (GKES) in Moscow, is the supervisory office for all Soviet economic and military assistance projects in Iran. Control of all Soviet specialists and projects throughout Iran is exercised through an administrative group in GKES (Tehran) which is staffed by approximately 100 Soviets. Projects under this office cover a wide range of joint Soviet/Iranian activities in such fields as banking, insurance, steel mills, gas and petroleum, power stations, mining and mineral exploration, coal mines, fisheries, erection of grain elevators and cold storage plants, electrification of railroads, prefabricated housing projects and vocational training centers. Listed below are the major Soviet projects showing estimated personnel figures and noting any changes or expansions since the last report (A-238, 26 November 1975, Appendix A).

Arak Machine Tool Plant - With the expansion of this factory in 1975/76 additional personnel were required, and it is now estimated there are 35 Soviet specialists assigned to the plant.

Coal Mines - In December 1975 Soviet personnel requirements were increased, bringing the total to 410.

Cold Storage - As of January 1976 there were 76 Soviet specialists assigned to the five known cold storage sites.

Fisheries - Due to the addition of six new facilities for the Iran-Soviet Fisheries, the number of Soviet specialists has increased to at least 25.

Gas Pipeline and Oil - In December 1975, an agreement on gas was signed by Iran, West Germany and the Soviet Union. Due to the construction of the pipeline, the present estimate of 200 Soviet specialists will undoubtedly be increased by the end of 1976.

Grain Elevators - Four grain elevators were opened in late 1975 (Miane, Shahgard, Darab and Bardjan), three sites are under construction (Sari, Semnan and Fasa) and three additional sites selected. The only available figure of Soviet specialists working on this project is 25.

Housing Projects - As of September 1976 it is estimated there are 150 Soviet specialists involved in prefab housing factories, the largest being the Aryashahr Prefab Housing Project in Isfahan. Soviet military specialists are also involved in a prefab housing project for the Iranian Armed Forces in Tehran.

Mining - There is no change from the 1975 estimate of 160 Soviet specialists engaged as advisors and technicians in the mining industry or as mineral surveyors and prospectors.

Power Stations - In addition to the power plant located at Ahwaz, construction began on the Isfahan Power Station. However, the only available figure for Soviets connected with this project is 229.

Railroads - After the signing of the agreement for the electrification of the Tabriz-Julfa railway, a total of 50 Soviet specialists were located in Tabriz and Marand in early 1976, but it is estimated there will be eventually 500 Soviet engineers and technicians assigned to this project. (Note: AmConsul Tabriz believes present level of Soviet technicians to be 150, with the vast majority in Marand.)

Steel Mill - The Aryamehr Steel Mill in Isfahan has the largest group of Soviet specialists which is estimated at 1,586. In late 1975, an order was given to raise production and the mill was completely overhauled in March 1976. 386 positions for Soviet specialists were added in April 1976.

Vocation Training Centers - There are approximately 70 Soviet specialists assigned to the 16 vocational training schools run jointly by the USSR and the Iranian Ministry of Education.

Based on the above available figures or estimates of Soviet personnel in various military or economic projects, the total is 3,236 Soviet specialists. Doubling this figure to provide for wives, plus the official Soviet personnel of 800, the total Soviet presence in Iran would be 7,272. While this is considered a very conservative estimate, it does show an increase of 1,633 Soviets over the 1975 estimate, or roughly 29%.

TRADE BY MAJOR COMMODITIES WITH PRINCIPAL COMMUNIST TRADING PARTNERS

During the Year 2534 (March 21, 1975 - March 20, 1976)

.R.

tn from USSR	Mill. $	Exports to USSR	Mill. $
Non-Military Imports	169.3	Total Exports	232.3
and steel products	35.4	Natural gas from oil-well	120.1
ower seeds' oil	31.7	Cotton, raw	30.9
al fertilizers	18.2	Lead, zinc and other ores	21.0
inery and parts thereof	15.9	Soap and laundry preparations	15.8
lumber and products	13.7	Dried fruits	13.8
les other than railway	12.1	Knitted and crocheted goods	13.2
t and fire clay	9.9	Others	17.5
and paperboard	5.4		
	27.0		

tn from PRC	Mill. $	Exports to PRC	Mill. $
Non-Military Imports	61.7	Total Exports	22.4
	20.5	Cotton, raw	20.4
ic products	5.6	Unwrought aluminium	1.4
machines and other types		Others	0.6
machinery and parts	3.8		
and steel products	2.9		
articles of base metal	2.9		
s, mats and tapestries	2.1		
coffee and spices	1.8		
colors, paints and varnish	1.3		
	20.8		

tn from Romania	Mill. $	Exports to Romania	Mill. $
Non-Military Imports	167.3	Total Non-oil exports	10.1
s	20.7	Cotton, raw	5.4
ers and vehicles other		Vehicles other than railway	1.2
an railway	39.0	Knitted and crocheted goods	1.1
and steel products	13.6	Tulle and other knitted fabrics	0.9
eep, lamb and poultry	13.5	Others	1.5
ery and parts thereof	13.2		
and edible meat offals	9.8		
al fertilizers	9.4		
products	9.1		
	39.0		

2532 - 2534 (1973-74 - 1975-76)

(In Millions of US$)

	I M P O R T S						E X P O R T S					
	2532(1973-74)		2533(1974-75)		2534 (1975-76)		2532 (1973-74)		2533 (1974-75)		2534 (1975-76)	
	Mill $	% of Import	Mill $	% of Import	Mill $	% of Import	Mill $	% of Export	Mill $	% of Export	Mill $	% of Export
U.S.S.R.	214.7	5.7	271.3	4.1	169.3	1.4	182.8	25.0	204.2	28.9	232.3	31.5
Romania	47.6	1.3	58.4	0.9	167.3	1.4	13.9	1.9	12.8	1.8	10.1	1.4
Czechoslovakia	22.8	0.6	28.9	0.4	44.2	0.4	11.5	1.6	9.9	1.4	10.6	1.4
Hungary	21.0	0.6	19.2	0.3	35.1	0.3	13.4	1.8	13.1	1.8	23.3	3.2
Poland	15.0	0.4	22.1	0.3	35.6	0.3	10.2	1.4	6.1	0.9	9.4	1.3
Bulgaria	9.2	0.2	24.0	0.4	43.1	0.4	1.6	0.2	2.5	0.3	2.7	0.4
E. Germany	0.7	--	2.5	--	9.2	0.1	2.3	0.3	1.1	0.2	2.9	0.4
P.R.C.	25.0	0.7	117.5	1.8	61.7	0.5	7.7	1.1	7.2	1.0	22.4	3.0
Albania	0.1	--	*	--	0.1	--	*	--	*	--	*	--
Cuba	*	--	0.2	--	0.1	--	--	--	--	--	--	--
N. Korea	--	--	0.8	--	0.6	--	--	--	0.2	--	*	--
N. Vietnam	0.1	--	*	--	0.2	--	--	--	*	--	*	--
Mongolia	--	--	0.4	--	0.1	--	--	--	--	--	0.2	--
Sub Total	356.2	9.5	545.3	8.2	566.6	4.8	243.4	33.3	257.1	36.3	313.9	42.6
Total Iran's Trade	3751.0	100.0	6638.1	100.0	11776.8	100.0	730.4	100.0	707.6	100.0	736.5	100.0

Note: Import are Non-Military and Exports are Non-Oil but include natural gas to USSR.

Source: Foreign Trade Statistics of Iran, Ministry of Economic Affairs and Finance.

Conversion Rate: One US$ equals Rls. 67.50 for the years 2532 and 2533 and Rls. 68.00 for the year 2534.

* Les than $50,000.

4. Czechoslovakia

Imports from Czechoslovakia	Mill. $	Exports to Czechoslovakia
Total Non-Military Imports	44.2	Total Non-Oil Exports
Machinery and parts thereof	14.9	Cotton, raw
Iron and steel products	13.6	Dried fruits
Wood, lumber and products	4.3	Raw hides and skins
Others	11.4	Knitted and crocheted goods
		Others

5. Hungary

Imports from Hungary	Mill. $	Exports to Hungary
Total Non-Military Imports	35.1	Total Non-Oil Exports
Iron and steel products	17.9	Cotton, raw
Dairy products	2.9	Shoes and footwear of all kinds
Machinery and parts thereof	2.7	
Meat and edible meat offals	2.2	Dried fruits
Cycles not motorized (including delivery tri-cycles)	1.9	Others
Others	7.5	

6. Bulgaria

Imports from Bulgaria	Mill. $	Exports to Bulgaria
Total Non-Military Imports	43.1	Total Non-Oil Exports
Meat and edible meat offals	17.1	Knitted and crocheted goods
Live sheep, lamb and poultry	10.5	Others
Dairy products	4.3	
Iron and steel products	4.2	
Machinery and parts thereof	2.2	
Others	4.8	

7. Poland

Imports from Poland	Mill. $	Exports to Poland
Total Non-Military Imports	35.6	Total Non-Oil Exports
Dairy products	8.9	Cotton, raw
Machinery and parts thereof	5.8	Zinc and chromium ores
Chemical fertilizers	4.7	Articles of Jewellery and parts thereof
Electric machinery and parts	4.2	
Iron and steel products	2.4	Dried fruits
Others	9.6	Others

Dr. John D. Stempel, THR;POL June 13, 1977

AmConsul ISFAHAN

Number of Russians in Isfahan

The number of Russians at the Steel Mill reported by Dick in the accompanying memo squares well with what we have heard previously -- and reported. Keirn Brown used to use the figure of 1,500. The Russian Consul General admitted to having about 1,300. This would square with a figure of 600 principals at the mill, dependants, the 13-15 principals at the Consulate General plus dependants, the Russo-Iranian bank people (just 1 or 2, I think), and the consultants on the power plant survey and the geodetic survey. I have never heard a figure for the latter, but I assume the numbers are fairly small.

GBMarshall:gbm CONFIDENTIAL

REPORT CLASS S E C R E T--WNINTEL--NOFORN--NOCONTRACT--ORCON

COUNTRY: IRAN/USSR

SUBJECT: DISCUSSIONS BETWEEN SOVIET AMBASSADOR TO IRAN AND PRIME MINISTER AMOUZEGAR CONCERNING ONGOING AND PROPOSED SOVIET PROJECTS IN IRAN (DOI: 17 NOV 77)

SOURCE : AN IRANIAN GOVERNMENT OFFICIAL OF KNOWN RELIABILITY WHO HAD ACCESS TO MINUTES OF THE MEETING

1. FIELD COMMENT AND SUMMARY: ON 17 NOVEMBER 1977 SOVIET AMBASSADOR TO IRAN VLADIMIR MIKHAYLOVICH V I N O G-R A D O V, HELD A [redacted] DISCUSSION WITH IRANIAN PRIME MINISTER JAMSHID A M O U Z E G A R CONCERNING ONGOING AND PROPOSED CONSTRUCTION PROJECTS IN WHICH THE SOVIET UNION HAD AN INTEREST. MAJOR PROJECTS DISCUSSED WERE THE EXPANSION OF THE ISFAHAN STEEL MILL, ESTABLISHMENT OF A NEW PORT ON THE CASPIAN SEA COAST, CONSTRUCTION OF A HIGH CAPACITY ELECTRICAL TRANSMISSION LINE BETWEEN TABRIZ AND TEHRAN, AND SOVIET BIDS ON CONSTRUCTION OF AN OIL PIPELINE BETWEEN ISFAHAN AND KERMAN. END FIELD COMMENT AND SUMMARY.

2. IN RESPONSE TO EARLIER QUERIES FROM VINOGRADOV CONCERNING IRAN'S ABILITY TO PROCEED WITH EXPANSION OF THE

STEEL MILL IN ISFAHAN WHICH HAD BEEN CONSTRUCTED WITH SOVIET ASSISTANCE, PRIME MINISTER AMOUZEGAR SAID THAT THE GREATEST DIFFICULTY WHICH IRAN EXPECTS TO ENCOUNTER IN THIS PROJECT IS A LACK OF MANPOWER. IN ORDER TO OVERCOME THIS PROBLEM LABORERS WILL BE DRAWN FROM THE IRANIAN ARMY. THIS PROCEDURE HAS BEEN FOLLOWED IN THE PAST.

3. AMOUZEGAR INFORMED VINOGRADOV THAT HE HAS INSTRUCTED THE MINISTRY OF ROADS AND TRANSPORTATION TO SELECT A SUITABLE SITE FOR A PROPOSED NEW PORT TO BE CONSTRUCTED ON THE CASPIAN SEA WITH SOVIET ASSISTANCE. AMOUZEGAR EXPLAINED THAT IRAN WISHES TO COMBINE THE PORT WITH A RAILROAD TERMINAL AND DEVELOP ADEQUATE ROAD TRANSPORTATION FROM THE PORT AS WELL. THE SITE MUST ALSO BE LOCATED AS CLOSE AS POSSIBLE TO A SOVIET PORT ON THE CASPIAN AND CARGO HANDLING EQUIPMENT AND OTHER SUPPORT MECHANISMS MUST BE COMPATIBLE WITH THAT USED IN THE SOVIET PORT.

4. IN RESPONSE TO A SOVIET PROPOSAL TO SELL IRAN SPECIAL METEOROLOGICAL ROCKETS DESIGNED TO PREVENT HAIL STORMS IN CROP GROWING AREAS, AMOUZEGAR SAID HE HAD INSTRUCTED THE MINISTRY OF AGRICULTURE TO CONTACT THE SOVIET EMBASSY IN ORDER TO PURCHASE SOME OF THESE ROCKETS

FOR TESTING PURPOSES.

5. AMOUZEGAR EXPLAINED THAT A SOVIET BID TO CONSTRUCT AN ELECTRICAL TRANSMISSION LINE FROM TABRIZ TO TEHRAN HAD BEEN REJECTED AND THE CONTRACTOHAD BEEN AWARDED TO A BRITISH FIRM. AMOUZEGAR POINTED OUT THAT THE BRITISH HAD PREVIOUSLY DONE WORK ON THE DESIGN OF THIS PROJECT AND AWARDING THE CONTRACT TO THE SOVIETS WOULD REQUIRE THAT IRAN BACK OUT OF ITS PREVIOUS COMMITMENTS TO THE BRITISH.

6. AMOUZEGAR TOLD VINOGRADOV THAT THERE WAS NO OBJECTION TO THE SOVIETS BIDDING ON THE OIL PIPELINE PROJECT FROM ISFAHAN TO KERMAN. HE RECOMMENDED THAT THE SOVIETS CONTACT THE NATIONAL IRANIAN OIL COMPANY (NIOC) AND DEAL WITH THEM DIRECTLY. AMOUZEGAR POINTED OUT THAT NIOC HAD A NUMBER OF PROJECTS UNDER CONSIDERATION AND HAD RECEIVED A NUMBER OF OFFERS ON EACH OF THEM.

7. OTHER PROJECTS TOUCHED UPON WERE: A PROPOSAL FOR INTERCONNECTING THE SOVIET AND IRANIAN ELECTRICAL POWER GRIDS AND A FEASIBILITY STUDY FOR CONSTRUCTION OF A SOVIET DESIGNED PLANT RELATED TO THE ARYAMEHR STEEL COMPLEX IN ISFAHAN NOTED IN PARAGRAPH TWO. NO DETAILS OF EITHER PROJECT WERE DISCUSSED.

- - - - - -

Iran made no new arms purchase agreements with the Soviet Union during 1978. The main 1978 activities, thus, involved deliveries of d training for items covered by two earlier agreements, those in late 1976 and May 1977. ZSU-23-4 (self-propelled anti-aircraft gun) deliveries are complete, although all of the equipment remains in an Isfahan depot while necessary training is underway. Most or all of the BMP-1 armored personnel carriers have been delivered, as well as the SA-7 Strelas and 130 MM guns. In connection with the latter two, projects are underway which will lead to local production of the Strelas, as well as ammunition for the Strelas and the 130 MM guns.

Training continues to be a serious problem. The GOI will not send Iranian military personnel to the Soviet Union for extended periods of training, although small groups have apparently gone for very brief stays. Several small groups of Soviet technicians are in Iran to train Iranian personnel in the use of its newly-acquired Soviet equipment, but Iranian officials are very unhappy with the quality and effectiveness of that training.

POL/MIL:MLGreene/bjh 11/20/78

TELEGRAM

1978 OCT 11 PM 12: 16

INDICATE
☐ COLLECT
☐ CHARGE TO

09895

FROM	CLASSIFICATION
AMEMBASSY TEHRAN	CONFIDENTIAL

E.O. 11652:
TAGS:
SUBJECT:

ACTION:

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ACTION: SECSTATE WASHDC PRIORITY

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INFO: AMEMBASSY MOSCOW

CONFIDENTIAL TEHRAN 09895

E.O. 11652: XGDS - 1

TAGS: ENRG, IR, UR

SUBJECT: SOVIETS INTERESTED IN OBTAINING MORE IRANIAN GAS

1. DURING A CONVERSATION 10 OCTOBER WITH THE PETOFF, THE MANAGING DIRECTOR OF THE NATIONAL IRANIAN GAS COMPANY, TAGHI MOSSADEGHI (CAREFULLY PROTECT), SAID THAT HE HAD RECENTLY BEEN VISITED BY THE RUSSIANS WHO WERE DESIROUS OF BEGINNING TALKS ABOUT THE CONSTRUCTION OF A THIRD EXPORT GAS LINE (CONSTRUCTION OF THE SECOND, IGAT-II IS NOT SCHEDULED FOR COMPLETION UNTIL EARLY 1981). MOSSADEGHI SAID THAT A THIRD LINE, IF BUILT, WOULD BE TO SUPPLY THE USSR WITH GAS FOR DOMESTIC CONSUMPTION AND WOULD ALSO BE USED IN A SWAP ARRANGEMENT WITH EUROPEAN COUNTRIES. HE SPECIFICALLY MENTIONED SWEDEN AND CZECHOSLOVAKIA AS COUNTRIES THAT XXX WANTED TO PARTICIPATE IN SUCH A TRILATERAL SWITCH DEAL.

2. MOSSADEGI SAID THAT NIGC WAS NOT INTERESTED IN

DRAFTED BY:	DRAFTING DATE	TEL. EXT.	CONTENTS AND CLASSIFICATION APPROVED BY:
E/C:RMBash:dd	10/11/78	1129	E/C:JLMills

CLEARANCES:

CONFIDENTIAL XGDS-1
CLASSIFICATION

OPTIONAL FOR
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ANOTHER PIPELINE EXPORT PROJECT TO THE USSR AND HE ALSO SAID THAT HE HAD SO INFORMED THE RUSSIANS. MOSSADEGHI'S LACK OF INTEREST REFLECTS THE GOI POLICY ANNOUNCED ALMOST TWO YEARS AGO THAT IRAN IS NOT INTERESTED IN PURSUING ANY NEW GAS EXPORT PROJECTS; AND, THAT POLICY, IN TURN, REFLECTS BOTH THE MARGINAL ECONOMIC RETURNS TO IRAN OF GAS EXPORTS AND THE INCREASING DOMESTIC REQUIREMENTS FOR GAS, ESPECIALLY FOR THE GAS INJECTION PROGRAM IN THE KHUZESTAN OIL FIELDS.

SULLIVAN

CONFIDENTIAL XGDS-1
Classification

OPTIONAL FORM 152a(H)
(Formerly FS-413(H)a)
January 1975
Dept. of State

50152-201

National Foreign Assessment Center

Secret
NOFORN

USSR: Natural Gas Pipelines

A Reference Aid

Secret

ER 79-10195
April 1979

Copy 342

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National Security Information	Unauthorized Disclosure Subject to Criminal Sanctions

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	NFIBONLY (NO)	NFIB Departments Only
	ORCON (OC)	Dissemination and Extraction of Information Controlled by Originator
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	FGI	Foreign Government Information
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All material on this page is unclassified.

National
Foreign
Assessment
Center

USSR
Natural Gas Pipelines (U)

A Reference Aid

Research for this report was completed on 15 February 1979.

The authors of this paper are Kenneth Kessel and Philip Hirtes, USSR/Eastern Europe Division, Office of Economic Research. It was coordinated with the Offices of Imagery Analysis and Political Analysis. Comments and queries are welcome and should be directed to Mr. Kessel, telephone 351-7107.

Preface

This paper is the first update of a report on the Soviet gas pipeline network originally published in 1963 (CIA/RR ER 63-3, *USSR: Atlas of Transmission Pipelines for Natural Gas*, March 1963). It is a reference aid and, as such, includes only a short section describing Soviet pipeline developments and problems. For a thorough discussion of the Soviet gas industry and its problems and prospects see CIA/RR ER 78-10393, *USSR: Development of the Gas Industry*, July 1978. (U)

The attached map—which is the focus of this report—depicts *all* known Soviet gas pipelines in operation or under construction. The accompanying tabulation of the major gas pipeline systems in the USSR (see table 1) is limited to those systems that include (a) lines with at least a 40-inch diameter, and (b) lines of 20 inches to 40 inches in diameter that are part of a major pipeline system. By 1980 more than 40 percent of the entire Soviet pipeline network will be comprised of pipe 40 inches in diameter or larger. (A more detailed tabulation of Soviet gas pipelines is listed in the report referenced above.) (S NF)

Appendix A describes pipeline capacity; appendix B discusses the methodology and sources used in preparing this report and their limitations. (U)

USSR:
Natural Gas Pipelines (U)

The Soviet gas pipeline network has grown very rapidly, increasing from only 5,000 kilometers (km) in 1955 to nearly 120,000 km by the end of 1978. Only about one-fourth the size of the US system, the Soviet network, nevertheless, represents a major construction achievement. A large share of the network was built under conditions comparable to those faced in laying pipelines in Alaska or the Arabian Peninsula. These were characterized by harsh physical and environmental conditions—as in the deserts of Central Asia and the subarctic regions of West Siberia (see figure 1)—and a poorly articulated or non-existent transportation and support base. Moreover, in the face of a Western embargo on large diameter pipe in the early 1960s, the Soviets developed a domestic production capability by overcoming formidable technology constraints (see figure 2). Multiple pipelines now crisscross the western half of the USSR, linking the gas-rich regions of West Siberia and Central Asia with major consumers in the European USSR and Eastern and Western Europe (see map). (U)

The Soviets began laying large diameter pipe extensively in the 1970s; the USSR is the first country to use 56-inch pipe on a major scale (see figure 3). Although the Soviet Union is the world's largest producer of large diameter steel pipe, it depends heavily on imports from West Germany, Japan, Italy, and others to supplement domestic production. (U)

Inferior pipe metallurgy and compressor technol have hindered the development of the trunk pip network somewhat by holding throughput capac below optimal levels and pushing up gas transpo costs. For the most part, Soviet-produced large ter pipe is limited to pressures of 55 atmosphere probably because of metallurgical deficiencies whereas pipe imported from the West is designe work at 75 atmospheres or higher. Operating at rather than 55 atmospheres of pressure provides percent increase in pipeline throughput capacity

Apart from the pipe constraint, the USSR is un provide adequate compressor capacity for the ec cal operation of the installed pipelines. Many of major lines operate at 50 to 70 percent of maxi capacity. Moreover, compressor construction is tinuing to lag during the 10th Five Year Plan (1 80) In the last two years less than 70 percent of planned new compressor capacity has been insta The fault lies primarily with the lack of adequat domestic production and installation capacity a as the shortage in hard currency required to sup ment domestic compressor production with imp from the West. The showcase Orenburg line (se figure 4) and the Urengoy-Chelyabinsk line will imported compressors almost exclusively. (S NF)

Table 1

USSR: Major Natural Gas Pipelines [1]

Pipeline Route	Length (kilometers)	Diameter[2] (inches)	Number of Lines	Capacity (billion cubic feet per year)	Comments
West Siberian Systems					
Urengoy-Medvezh'ye-Nadym-Punga-Vuktyl-Torzhok-Ivatsevichi-Uzhgorod	5,500	48, 56	2-3	1,980	The "Northern Lights" system supplies Moscow, Leningrad, and Europe with gas from fields in Komi and West Siberia.
Urengoy-Medvezh'ye-Nadym-Punga-Nizhnyaya Tura-Perm-Kazan-Gorkiy-Moscow	2,600	48, 56	2-3	1,410-1,770	The "Urengoy-Center" system delivers northern Tyumen' gas to the Urals and Moscow.
Urengoy-Vyngapur-Chelyabinsk	1,600	56	1	1,170	The "Urengoy-Chelyabinsk" system brings Tyumen gas' to the southern Urals. It will operate considerably below capacity until more compressor stations are built. Plans call for two more lines by 1981 and extensions to Kuybyshev and beyond.
Nizhnevartovsk-Parabel'-Tomsk-Kemerovo-Novokuznetsk	1,100	40-48	1	350	This line transports associated gas from the Samotlor oil region to the Kuzbass. It is operating at greatly reduced capacity because of incomplete construction and numerous pipeline breakdowns.
Vologda-Cherepovets-Leningrad	550	40-56	1	710	A branch of the Northern Lights system still under construction.
Solcninskoye-Messoyakha-Noril'sk	300	28, 40	2	390	Northernmost gas pipeline in the world. This line is subject to frequent breakdowns during the winter months, the most recent being in February 1979. Bursting pipes and valves are commonplace due to the extreme cold, and high winds blow the pipe off its elevated supports.
Central Asian Systems					
Bukhara-Chelyabinsk-Sverdlovsk-Nizhnyaya Tura	2,300	40, 48	2	850	The "Central Asia–Urals" system.
Bukhara-Moscow	2,400	40	2	850	"Central Asia–Center" #1 and #2.
Okarem-Beynev-Ostrogozhsk	2,550	28-48	1	140-480	"Central Asia–Center" #3.
Shatlyk-Khiva-Ostrogozhsk	2	56	1	1,060	"Central Asia–Center" #4.
Bukhara-Tashkent-Alma Ata	1,50	20, 32, 40	1-3	50-530	
Urals Systems					
Orenburg-Aleksandrov Gay-Novopskov-Kremenchug-Uzhgorod	2,750	56	1	990	The "Orenburg pipeline" (Soyuz) will begin limited operation in 1979, reaching full capacity by the early 1980s. This pipeline, jointly constructed by CEMA, will bring gas from the Urals to the Czech border for export to Eastern and Western Europe.

Table 1 (Continued)

USSR: Major Natural Gas Pipelines [1]

Pipeline Route	Length (kilometers)	Diameter[2] (inches)	Number of Lines	Capacity (billion cubic feet per year)	Comments
Orenburg-Novopskov	1,200	48-56	1	350-710	This line links up with the North Caucasus-Center system (see below).
Orenburg-Dombarovskiy	400	48	1	530	Links Central Asia–Urals lines to Orenburg lines.
Orenburg-Zainsk	500	40	1	300	
Orenburg-Kuybyshev	400	40	1	300	
Ukraine Systems					
Dashava-Dolina-Uzhgorod	200	32, 56	2	1,240	The "Bratsvo" (brotherhood) li transports Soviet gas to Eastern Europe. A third line is under construction.
Dashava-L'vov-Ivatsevichi-Vilnyus-Riga	1,375	20-32	1	250	
Shebelinka-Dnepropetrovsk-Nikolayev-Izmail-Galati (Romania)	900	28, 40	2	420	Export line to Romania and Bul garia; it also serves Odessa.
Dashava-Kiev-Bryansk-Moscow	1,300	20-28	1	50-140	
Dolina-Kiev	550	40	2	570	
Shebelinka-Kiev	500	28, 40	3	710	
Valday-Pskov-Riga	600	28, 40	1	140-280	
Central Systems					
Krasnodar and Stavropol-Moscow	1,275	28, 32, 40	4-5	1,770	The "North Caucasus–Center" system.
Saratov-Gorkiy-Cherepovets	1,200	20-32	1	210	
Serpukhov-Leningrad	850	28-40	2	420	Extension of the North Caucas Center system.
Leningrad-Vyborg-Imatra (Finland)	180	56	1	710	Export line to Finland.
Transcaucasus Systems					
Ahwaz (Iran)-Astara (USSR)-Kazi Magomed	1,200	40	1	420	The "Iranian Gas Trunkline" (IGAT I) is an import line, wh supplies the Transcaucasus re with 353 billion cubic feet a ye second line (IGAT II), which under construction, will provid USSR with an additional 600 lion cubic feet by 1984.[3]
Karadag-Yerevan and Tbilisi	770	28, 40	2	420	A third line is under construct

[1] Major pipeline systems include (a) lines with at least a 40-inch diameter and (b) lines of 20 inches to 40 inches in diameter that are part of a major pipeline system.
[2] To convert to millimeters, as pipeline diameters are shown on the map, see Table 2, page 7.
[3] Iranian gas deliveries to the USSR via this line were suspended from November 1978 to April 1979.

This table is classified Secret Noforn.

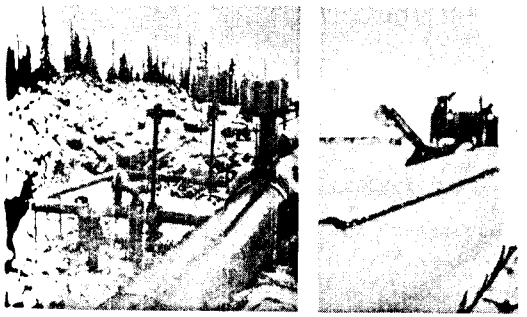

Figure 1. Difficult conditions of Arctic pipeline construction in West Siberia.

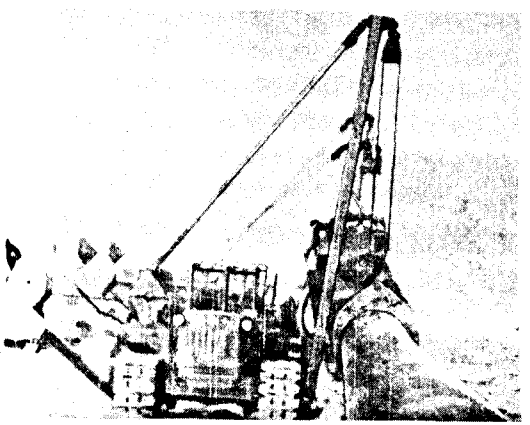

Figure 2. Large diameter pipe for the Urengoy-Chelyabinsk gas pipeline.

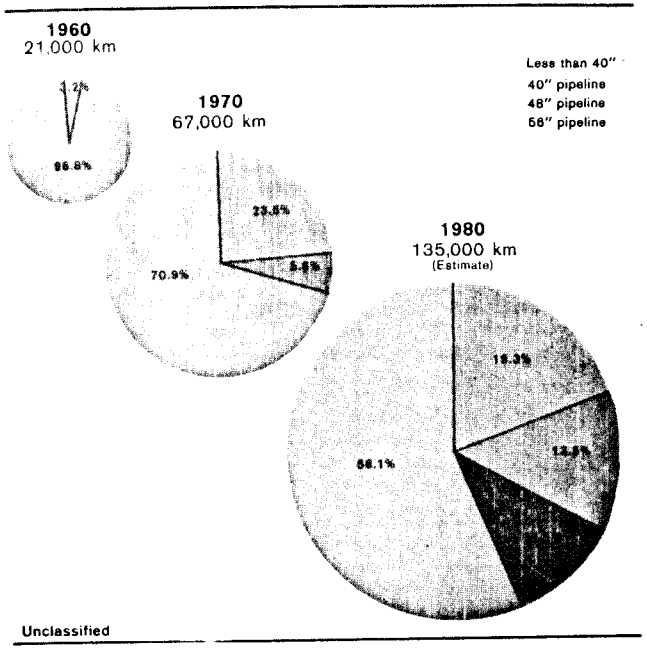

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Figure 3. USSR: Distribution of Gas Pipelines, by Size

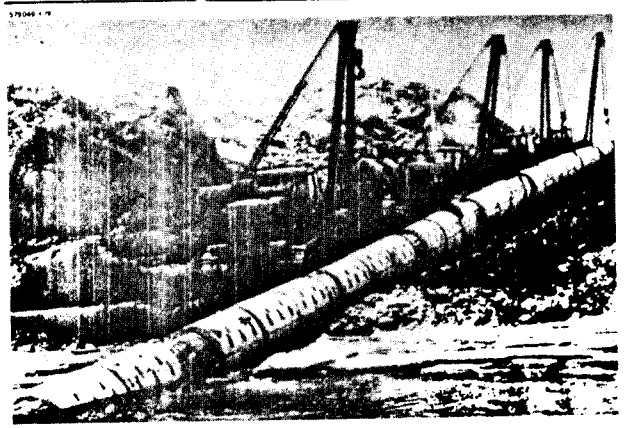

Figure 4. Construction of the Orenburg gas pipeline at a crossing in the Carpathian mountains.

Appendix A

Explanatory Notes

The capacity of a gas pipeline system is largely a function of three parameters: pipeline diameter, operating pressure, and the number of strings or lines on a given route. Improvements in gas pipeline technology in the last several decades have included the use of large diamater pipe, higher strength steels (which allow higher operating pressures and thus greater throughput), and large gas turbine compressor units, some of which employ modified aircraft jet engines. (U)

Diameter

Pipeline diameters are shown on the map where known. On multiple lines, the size of the individual lines are shown, separated by commas. Where the data are uncertain or reports provide conflicting information, a probable range of diameters is shown separated by a hyphen. Thus 32", 40" would indicate a twin pipeline in which one line is 32 inches in diameter and the other line is 40 inches in diameter, whereas 32"-40" would indicate only one line, whose diameter is likely to be in the range of 32 to 40 inches, but whose exact size is not known. Pipe that is 32, 40, 48, and 56 inches in diameter corresponds roughly to 820, 1,020, 1,220, and 1,420 millimeter pipe, respectively. (U)

Compressor Stations

Compressor stations are noted on the map when information exists on their precise location. Compressor station information is usually much more complete for the newer or larger lines and for the more publicized lines, such as the Orenburg pipeline. (U)

Throughput Capacity

Throughput capacity is a function of pipe size and operating pressure. Operating pressure is a function of pipe quality and compressor station size and spacing. Rough estimates of maximum throughput capacity for Soviet gas pipelines can be read from table 2 for different combinations of pipe diameters and operating pressures. Capacity values are only approximations and can vary, depending on actual compressor spacing. (U)

System Capacity

System capacity is the sum of the throughput capacities for each line between any two given points. In many cases, because the demand for gas far exceeds the transport capacity of any one line, multiple lines are laid in parallel. Only those lines that are either operational or under construction are shown on the map, and their status of completion is indicated. Planned lines have been excluded because of incomplete information on locations, diameters, and projected completion dates. (U)

Table 2

USSR:
Natural Gas Pipelines

Diameter		Pressure[1] (kg/cm²)[2]	Throughput Capacity	
Millimeters[1]	Inches		Billion cubic meters/yr[1]	Billion cubic feet/yr[1]
330	(13)	55	0.5	(20)
520	(20)	55	1.5	(50)
720	(28)	55	4.0	(140)
820	(32)	55	6.0	(210)
1,020	(40)	55	8.5	(300)
1,020		75	12.0	(420)
1,020		100	17.0	(600)
1,220	(48)	55	13.5	(480)
1,220		75	19.0	(670)
1,220		100	27.0	(950)
1,420	(56)	55	20.0	(710)
1,420		75	29.0	(1,020)
1,420		100	41.0	(1,450)

[1] *Stroitel'stvo Truboprovodov*, No. 3 (1971), pp. 20-22.
[2] Equal to 14.22 lbs/sq. in.

This table is Unclassified.

Appendix B

Methodology and Limitations

The primary material for this project was obtained from collateral sources. The *Review of Sino-Soviet Oil,* Soviet monographs, journals, and newspaper articles, and the British Broadcasting Corporation foreign radio monitoring service were the most important sources. Additional sources included classified reports and both classified and unclassified maps. These sources were supplemented by satellite photography, primarily to resolve conflicts and contradictions. (S NF)

The use of Soviet press reports requires some caution. Some reports give indefinite terminal points (for example, West Siberia - Urals) when in fact the information refers to one specific segment (for example, Nadym-Punga) of the overall string. In other cases, a report will state that a pipeline has gone into operation even though, again, it is referring to only one particular section of the line. Moreover, multiple line systems often have more than one string under construction at the same time, making it difficult to determine which string is being discussed. In other cases, lines have been reported under construction for many years, leading to doubts about the status of such a line. (U)

The map resources used were a 1975 edition of a gas pipeline map compiled by West German intelligence, a 1977 map published in Moscow, a dated but detailed CIA gas pipeline atlas, Operational Navigation Charts (ONCs) produced by the Defense Mapping Agency, and a large-scale (1:250,0[illegible] map series (Special Intelligence Graphics or S[illegible]) produced jointly by the Defense Mapping Agency Topographic Center and CIA. (S)

The West German map, though depicting a number of lines that apparently do not exist, was, nevertheless, a valuable source. In addition to portraying individual strings, it provided information on pipeline size and greatly facilitated accurate pipeline mapping by showing a good many intermediate points along each route. (S)

Two Soviet source maps were also useful. The fir[illegible] portrays not only the main pipelines, but also add[illegible] tional economic data. The second, which appeare[illegible] the January 1979 issue of the Ministry of Gas mo[illegible] *Gazovaya promyshlennost'*, is the most current d[illegible] tion of the existing Soviet pipeline network. Altho[illegible] individual strings and some important branch lin[illegible] shown, the routes are portrayed in a schematic a[illegible] imprecise fashion. (U)

The CIA gas pipeline atlas was the primary sourc[illegible] information for pipelines in operation prior to 19[illegible] Among the most detailed sources were the ONC [illegible] charts. They were produced at a scale of 1:1,000,[illegible] and are primarily intended for air navigation. In [illegible] addition to the aeronautical information, major t[illegible] graphic features are shown. Included are some m[illegible] gas pipelines with their routes accurately plotted.[illegible]

The SIG series at an even larger scale of four mil[illegible] the inch was also a valuable source, especially in [illegible] locating older lines. As with many large-scale ma[illegible] projects, many of the individual sheets are out of [illegible] some by more than a decade. Another problem w[illegible] this series was a lack of continuity. One sheet ma[illegible] show the existence of a pipeline, the next adjoinin[illegible] sheet may not show the line at all, and the follow[illegible] sheet may pick up the pipeline route again, but w[illegible] discrepancies in pipe sizes and the number of stri[illegible] (S)

Satellite photography was also employed in prepa[illegible] this research aid. This source was used primarily [illegible] resolve some of the contradictions in the collatera[illegible] source material and (b) to confirm the existence [illegible] status of certain important pipelines appearing in [illegible] collateral sources. (S NF)

Sources of Copyrighted Photographs

Figure 1. *Stroitel'stvo-Truboprovodov,* Nedra, Moscow, 1977.

Figure 2. *Stroitel'stvo Truboprovodov,* Nedra, Moscow, 1978.

Figure 4. *Stroitel'stvo Truboprovodov,* Nedra, Moscow, 1978.

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RUFHJA/USMISSION USBERLIN 4670
RUDKFB0/AMEMBASSY BERN 0297
RUFHOL/AMEMBASSY BONN 7617
RUDKAR/AMEMBASSY BUCHAREST 5350
RUDKDA/AMEMBASSY BUDAPEST 4694
RUFHGV/USMISSION GENEVA 9056
RUEHUB/USINT HAVANA 0352
RUFHLG/AMCONSUL LENINGRAD 5286
RUDKRP/AMEMBASSY PRAGUE 5255
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E.O. 12065: GDS 3/22/85 (TOON, MALCOLM) OR-M
TAGS: ENRG, EEWT, TECH, UR, IR, SZ

SUBJECT: (U) SOVIET UNCERTAINTY OVER ENERGY EXPORTS

REF: (A) MOSCOW 4472, (B) MOSCOW 3555

1. (C - ENTIRE TEXT)

2. SUMMARY: THE IRANIAN SHORTFALL IS INTRODUCING A NEW QUESTION MARK INTO PLANS FOR SOVIET ENERGY CONSUMPTION AND EXPORT. AMERICAN BUSINESS SOURCE (PROTECT) TELLS US THAT KNOWLEDGEABLE SOVIET OFFICIALS NOW PREDICT DELAY OF ONE YEAR IN COMPLETION OF IGAT-II GAS PIPELINE IN IRAN. HE STATES THAT THE DELAY, COMBINED WITH SHORTFALLS IN IRANIAN DELIVERIES ALONG IGAT-I RESULTING FROM REDUCED OIL PRODUCTION, CREATES A DIFFICULT CHOICE FOR THE SOVIETS: ACCELERATE AND EXPAND CONSTRUCTION OF PIPELINES FROM URENGOY FIELD TO ORENBURG, OR PAY PENALTIES FOR REDUCED SHIPMENTS TO WEST EUROPEAN CUSTOMERS UNDER THE TRILATERAL GAS DEAL.

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3. SEVERAL RECENT EVENTS INDICATE THAT SOVIETS ARE UNCERTAIN ABOUT THEIR CAPABILITY TO EXPORT ADDITIONAL GAS (AND OIL) IN THE 1980'S AND ARE AVOIDING LONG-TERM SUPPLY COMMITMENTS. THEY REFUSED TO DISCUSS GAS DELIVERIES AT FEBRUARY MEETING OF SWISS-SOVIET JOINT ECONOMIC COMMISSION, CITING ALLEGED GENERAL ORDERS FROM GOSPLAN TO THAT EFFECT. SWISS AND YUGOSLAV DIPLOMATS ALSO TELL US THE SOVIETS HAVE TURNED DOWN REQUESTS FOR ADDITIONAL [illegible] OF OIL DELIVERIES IN 1979 AND HAVE AGREED ONLY RELUCTANTLY TO CONTINUE DELIVERIES AT CURRENT LEVELS THROUGH 1980. FINALLY, SOVIETS, IN AN APPARENT REVERSAL OF POSITION FROM A YEAR AGO, HAVE INDICATED TO US RENEWED INTEREST IN RESEARCH ON SYNTHETIC FUELS. WHILE WE READ THESE AS SIGNS OF UNCERTAINTY ABOUT PRODUCTION, DISTRIBUTION, AND EXPORT CAPABILITIES, WE DO NOT DISCOUNT POSSIBILITY THAT SOVIETS, PARTICULARLY WITH RESPECT TO OIL, ARE AVOIDING LONG-TERM COMMITMENTS IN ORDER TO TAKE ADVANTAGE OF FUTURE OPPORTUNITIES TO RAISE EXPORT PRICES. END SUMMARY.

4. AN AMERICAN ENGINEER WHOSE COMPANY IS ENGAGED IN INSTALLATION OF COMPRESSOR STATIONS ALONG CHELYABINSK GAS PIPELINE (PROTECT) TELLS US THAT AT A RECENT MEETING, OFFICIALS OF SOYUZGAZEXPORT PREDICTED A DELAY OF ONE YEAR IN COMPLETING THE IGAT-II GAS PIPELINE IN IRAN. HE SAID THAT SOVIETS, IN ORDER TO MEET DELIVERY COMMITMENTS TO WEST EUROPEAN CUSTOMERS UNDER THE TRI-LATERAL GAS DEAL, WILL HAVE TO ACCELERATE AND EXPAND PIPELINE CONSTRUCTION FROM THE URENGOY FIELDS TO ORENBURG. SOURCE SAID THAT VARIOUS CONSTRUCTION PLANS ARE UNDER CONSIDERATION, THE MOST AMBITIOUS OF WHICH ENVISAGES PLACEMENT OF SIX PARALLEL LINES FROM URENGOY TO ORENBURG. THE ALTERNATIVE, HE SAID WOULD BE TO REDUCE SHIPMENTS TO WEST EUROPEAN CUSTOMERS DURING THE PLANNED FIRST YEAR OF DELIVERIES UNDER THE AGREEMENT (1981), RISKING INVOCATION OF PENALTY CLAUSES IN CONTRACTS. (SOURCE THOUGHT PENALTIES CALL FOR PAYMENT IN ADDITIONAL GAS RATHER THAN CASH.

5. SOURCE ALSO STATES THAT CUTOFF IN IRANIAN SUPPLIES THIS WINTER FORCED THE SOVIETS TO ACCELERATE DELIVERIES TO THE SOUTH ALONG THE CHELYABINSK PIPELINE, WHICH THEY ACCOMPLISHED BY FORCING INCOMPLETELY-INSTALLED EQUIPMENT INTO OPERATION. ACCORDING TO SOURCE, THIS PROBLEM, NOT SEASONAL FACTORS, WAS RESPONSIBLE FOR MOST REDUCTIONS IN SOVIET GAS DELIVERIES TO SOME WEST EUROPEAN CUSTOMERS. HE SAID THAT RUHRGAS REPRESENTATIVE, IN PARTICULAR, WAS IN MOSCOW MARCH 20 TO COMPLAIN ABOUT
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RUFHOL/AMEMBASSY BONN 7618
RUDKAR/AMEMBASSY BUCHAREST 5351
RUDKDA/AMEMBASSY BUDAPEST 4695
RUFHGV/USMISSION GENEVA 9057
UEHUB/USINT HAVANA 0353
RUFHLG/AMCONSUL LENINGRAD 5287
RUDKRP/AMEMBASSY PRAGUE 5256
RUDKSA/AMEMBASSY SOFIA 4612
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SHORTFALL AND TO INVOKE PENALTY CLAUSE IN CONTRACT. (ON THE OTHER HAND, AUSTRIAN COMMERCIAL COUNSELOR SAYS SOVIETS MET COMMITMENTS TO THEM.)

6. COMMENT: ALTHOUGH TRILATERAL AGREEMENT APPARENTLY CALLS FOR DELIVERY OF ONLY A FEW BILLION CUBIC METERS IN 1981 WHICH COULD BE MADE UP BY ACCELERATING PACE AT WHICH IGAT-II SUBSEQUENTLY IS BROUGHT UP TO FULL CAPACITY, SHORTFALL FROM IGAT-I WILL CREATE LONGER-TERM SUPPLY CONSTRAINTS. END COMMENT.

7. MEANWHILE, THE SOVIETS CONTINUE TO AVOID LONG-TERM COMMITMENTS TO EXPORT OIL AND GAS. SWISS COMMERCIAL/SCIENCE COUNSELOR (PROTEC RECENTLY SAID THAT DURING FEBRUARY 20 MEETING OF SWISS-SOVIET ECONOMIC COOPERATION COMMISSION IN MOSCOW, THE SOVIETS REFUSED TO DICUSS EXPORT OF NATURAL GAS TO SWITZERLAND. SWISS HAD PROPOSED THIS AS A NEW AGENDA ITEM SOME EIGHT MONTHS EARLIER, AND SOVIETS HAD NOT OBJECTED TO IT AS RECENTLY AS A MONTH BEFORE THE MEETING. AT THE MEETING, HOWEVER, THE SOVIETS SAID THEY COULD NOT DISCUSS COOPERATION IN (REED: SALES OF) NATURAL GAS, AND, WHEN PRESSED, CITED ORDERS FROM GOSPLAN NOT TO DISCUSS NATURAL GAS DELIVERIES WITH ANYONE FOR THE FORSEEABLE FUTURE. (COMMENT: THIS IS CONSISTENT WITH PREVIOUS SOVIET REFUSAL EARLIER THIS WINTER TO DISCUSS LONG-TERM DELIVERIES WITH THSJGA AUSTRIANS AND CH (REFTELS).

8. THE SOVIETS ALSO TRIED TO DROP AGENDA ITEM ON CONTINUED SALES OF CRUDE OIL, BUT SWISS INSISTED ON KEEPING IT. SOVIETS RELUCTANTLY AGREED NOT TO CHANGE LEVEL OF DELIVERIES - VALUED AT 800 MILLION SF/ANNUM - FOR THE NEXT TWO YEARS, BUT REFUSED ANY FURTHER GUARANTEE. YUGOSLAV ECONOMIC OFFICERS ALSO HAVE TOLD US THAT DURING NEGOTIATION OF 1979 TRADE PROTOCOL, SOVIETS TURNED DOWN YUGOSLAV REQUEST TO INCREASE CRUDE OIL SHIPMENTS TO 5 MILLION TONS; AND AGREED ONLY TO KEEP CRUDE SHIPMENTS AT 4 MILLION TONS PER YEAR THROUGH 1980.

9. ON MARCH 12 MINISTRY OF POWER OFFICIAL K. V. ANANICHEV (CHIEF OF THE MAIN ADMINISTRATION FOR POWER AND ELECTRIFICATION ABROAD) TOLD SCICOUNS USSR IS INTERESTED IN RESEARCH ON FUEL SYNTHETICS, INCLUDING COAL GASIFICATION AND LIQUEFACTION AND USE OF REJECT HEAT FROM ELECTRIC POWER STATIONS FOR HYDROGEN. ANANICHEV COMMENTED THAT, WHILE THE SOVIET UNION HAS LARGE PETROLEUM AND NATURAL GAS RESERVES, THE COST AND DIFFICULTY OF DEVELOPING THEM MAKES SYNTHETICS, AN INCREASINGLY ATTRACTIVE ALTERNATIVE IN SOME REGIONS.

10. COMMENT: BECAUSE THE CUT-OFF OF IRANIAN GAS IS THE ONLY MAJOR CHANGE TO HAVE OCCURRED RECENTLY WITH RESPECT TO GAS SUPPLIES, WE SUSPECT THAT IT WAS A PROXIMATE CAUSE OF THE SOVIET DECISION NOT TO DISCUSS NEW GAS EXPORTS. WE DO NOT EXCLUDE THE POSSIBILITY, THAT THE SOVIETS MAY ALSO BE AVOIDING LONG-TERM COMMITMENTS IN ORDER TO DERIVE MAXIMUM ADVANTAGE FROM PRICE MOVEMENTS.

11. RELUCTANCE TO UNDERTAKE LONG-TERM COMMITMENTS ON OIL AND GAS EXPORTS ALSO REFLECTS CONCERN ABOUT ENERGY PRODUCTION AND DISTRIBUTION CAPABILITY IN THE 1980S. ANANICHEV'S REMARKS ON SYNTHETIC FUELS, FOR EXAMPLE, MARK AN APPARENT REVERSAL OF HIS PERSONAL POSITION FROM A YEAR AGO WHEN HE WAS EMPLOYED AT THE STATE COMMITTEE FOR SCIENCE AND TECHNOLOGY. SOVIET PRESS AND ECONOMIC JOURNALS ARE ALSO STRESSING DEVELOPMENT OF SYNTHETIC FUELS IN THE ELABORATION OF CEMA'S LONG-TERM PROGRAM IN ENERGY AND RAW MATERIALS. ENERGY PLANNING, WHICH HAS EVIDENTLY COMPLICATED THE PREPARATION OF THE 15-YEAR PLAN -- INCLUDING ITS FOREIGN TRADE ASPECTS -- IS NOT GETTING ANY EASIER FOR SOVIET LEADERS. TOON
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NOT RELEASABLE TO FOREIGN NATIONALS
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BUREAU OF
INTELLIGENCE
AND RESEARCH

(U) SIBERIAN ECONOMIC DEVELOPMENT

(U) Main Findings

Except for the development of power-intensive industries (such as aluminum) around giant hydroelectric plants, Siberian economic development in recent decades has increasingly emphasized resource extraction rather than integrated industrial development. This new direction has been caused both by the Soviet regime's inability to attract settlers to Siberia and by the depletion of older raw material sources, especially energy sources.

While Siberia contains only 10 percent of Soviet population, it has some 88 percent of the country's known sources of energy and most of its non-ferrous metals. The current five-year plan (1976-80) says that Siberia will provide the whole of the USSR's projected output increase for oil, gas, and aluminum, 90 percent of the increase for coal, 80 percent for copper, and 70 percent for hydroelectricity.

The regions of most recent Siberian development, Tyumen Oblast and areas bordering the Baykal-Amur Main Railroad (BAM), exemplify the new trend toward resource extraction. Three-quarters of Tyumen oil, for instance, is sent westward rather than consumed locally. Although Soviet planners give assurances that the BAM eventually will lead to the development of "territorial industrial complexes" in the Far East, such a development is at best decades away. In the meantime, the BAM will transport Udokan copper, Yakutsk coal, Aldan iron ore, and Siberian timber either westward to the European USSR or eastward to Pacific ports for export.

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WARNING NOTICE
SENSITIVE INTELLIGENCE SOURCES
AND METHODS INVOLVED

Report No. 1184
May 22, 1979

High development costs have led the Soviets to seek Western and Japanese involvement in Siberian projects. A number of Western countries have entered into pipe-for-gas deals with the Soviets; the Soviets and Japanese have concluded similar agreements for developing raw materials of the Siberian Pacific basin; and US and Japanese companies are currently negotiating with the Soviets on development of Yakutsk natural gas. While a number of factors have sobered all sides on the benefits to be derived from compensation agreements, common energy problems are likely to keep open the possibility of concluding future deals.

* * * * * *

(U) Soviet Pre-World War II Development of Siberia: The Strategy of Integrated Development

Siberia stretches from the Ural Mountains in the west to the Seas of Okhotsk and Japan in the east, and from Kazakhstan, Mongolia, and China in the south to the Arctic Ocean in the north (see map, over). It thus includes more than one-half of the Soviet Union and is 63 percent larger than the continental United States. Once described by Maxim Gorky as a "land of death and chains," this vast expanse has also evoked the image of an Eastern "El Dorado" laden with resources capable of enhancing Soviet power manyfold. Despite the formidable obstacles posed by the harsh Siberian climate and terrain, the Soviet regime, like its czarist predecessor, has been unable to resist the lure of exploiting this rich land.1/

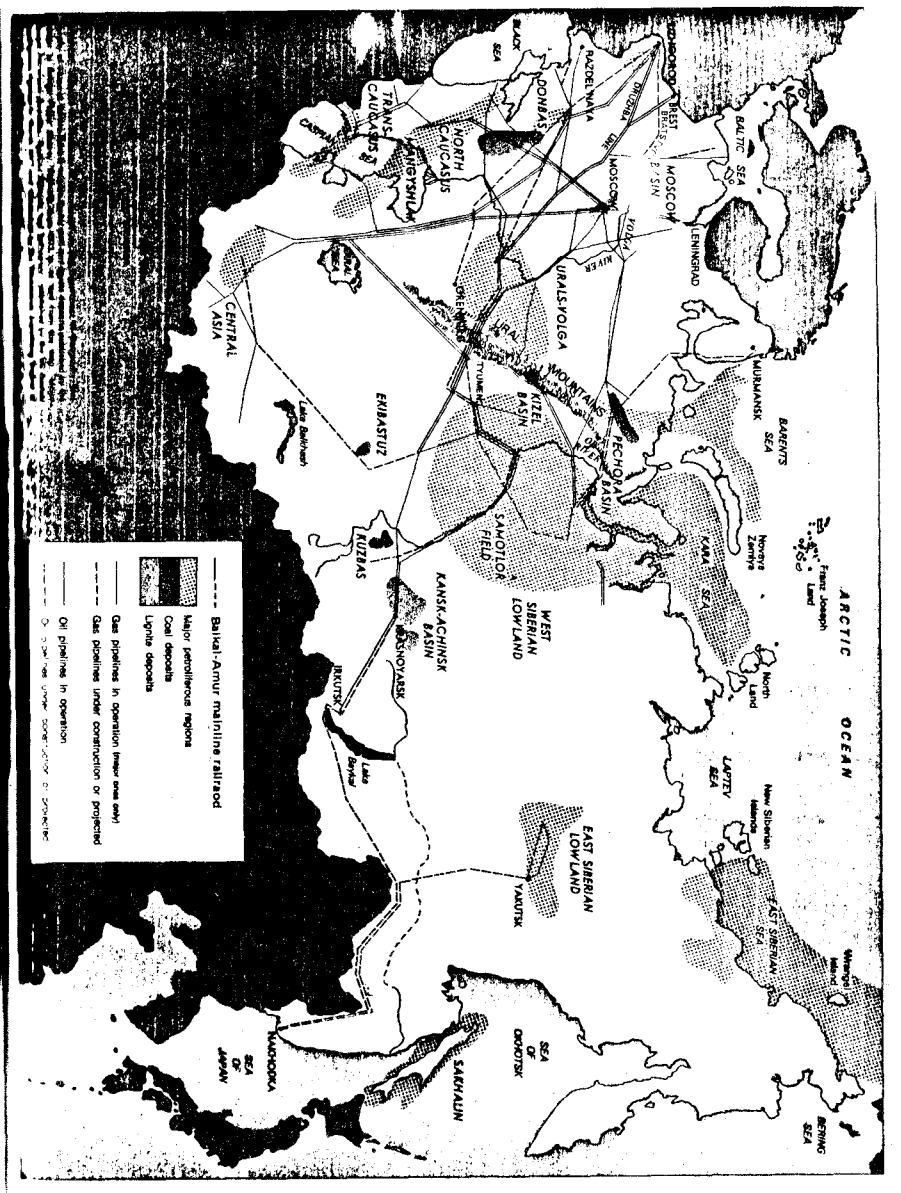
The Soviet strategy of Siberian development has passed through several stages, each reflecting the immediate needs of the national economy, strategic requirements, and labor policy.2/

Beginning with the first five-year plans in the late twenties and early thirties, the Stalinist regime attempted to foster an integrated development of Siberia. That is,

1/ Siberia is divided into three economic regions: West Siberia, East Siberia, and the Far East. West Siberia extends from the Urals to the Yenisey River; East Siberia from the Yenisey to the Pacific watershed--a line that meanders from about the peak of the bend of the Amur River, along the western boundary of Yakutskaya ASSR north of Lake Baykal, to the Laptev Sea. The Soviet Far East encompasses the remainder of Siberia.

2/ For a study of the historical evolution of Siberian development, see Theodore Shabad's and Victor Mote's Gateway to Siberian Resources (The BAM), Washington, D.C., Scripta Publishing Co., 1977.

SECRET/NOT RELEASABLE TO FOREIGN NATIONALS/NOT RELEASABLE TO CONTRACTORS OR CONTRACTOR-CONSULTANTS



it sought not merely to extract and export Siberia's natural riches to the European USSR; it also sought to populate the region and develop local industry using indigenous mineral resources. This policy, while partly based on a desire to achieve a more uniform distribution of productive forces, also reflected a desire to locate industrial plants in interior regions remote from Western invasion routes. The policy was greatly facilitated by the availability of large numbers of forced laborers who could staff projects unattractive to free labor.

In the years between 1918 and 1941, Siberian investment averaged from 13 to 15 percent of total USSR investment. Much of this effort was focused on the Urals-Kuznetsk iron and steel combine. Bringing together Siberian coal (Kuznetsk) and Urals iron ore, this project involved the development of two new integrated iron and steel centers, one near Magnitogorsk in the Urals and the other near Stalinsk (after 1961, Novokuznetsk) in the Kuznetsk basin. The Siberian portion of this project absorbed 44 percent of all industrial investment in West Siberia during the first five-year plan, and 25 percent during the second.

This investment was rewarded by rich dividends: Kuznetsk coal production increased 2 1/2 times in both the first and the second five-year plan, in 1940 reaching 22.5 million tons or 13.5 percent of all USSR coal production. In that same year, Kuznetsk produced 10.3 percent of total USSR steel production.

A major component of the Urals-Kuznetsk combine was the coke-based chemical industry. The first five-year plan saw the expansion of the coke-chemical plant that had gone into operation at Kemerovo in 1924. This expansion in turn led to the creation of a new coke-chemical complex, which manufactured nitrogenous fertilizers, aniline dyes, and other coal-tar derivatives. By 1940, 6.9 percent of all Soviet fertilizer output was produced by the Kemerovo complex.

Although the Urals-Kuznetsk combine in West Siberia represented the largest single investment program in Siberia before World War II, the greatest share of regional investment was channeled into the Far East. This regional priority was dictated by a desire to 1) speed the settlement of the Pacific coastal areas of the Soviet Union, 2) develop

needed mineral resources (particularly gold in the Kolyma Valley north of the port city of Magadan), and 3) provide the Far East with an integrated economy, reducing costly hauls of essential commodities from the western USSR.

Investment in Far Eastern Siberia intensified on the eve of World War II as Moscow took measures to secure the region's defense in the face of a growing Japanese military threat. Much of the early investment was directed toward developing the oilfields of northern Sakhalin, which by 1940 yielded 1.6 percent of total Soviet oil production. Oil refineries opened in Khabarovsk in 1935 and in Komsomol'sk in 1942.

Siberia's traditional lumber industry also expanded during the prewar period. The share of sawn timber in total wood production increased because of the growing needs of the construction industry--in 1940 Siberia contributed 22.6 percent of all Soviet sawn timber. Little processing of forest products was done in Siberia, however.

Lumbering continued to grow after the war with the construction of feeder railroads northward from the Trans-Siberian mainline. By the mid-1970's, Siberia accounted for 35.1 percent of total USSR roundwood production, with the primary regions of Siberian production located in Tyumen and Tomsk Oblasts (in West Siberia), Krasnoyarsk Kray and Irkutsk Oblast (in East Siberia), and Khabarovsk Kray (in the Far East).

(U) Impact of the War

Siberian industrial development was accelerated during World War II and assumed a new aspect as manufacturing industries threatened by the German advance were evacuated from industrial centers in the European USSR to Siberia. Most of these transfers were to West Siberia, where the percentage of total USSR investment reached 6.1 percent for the years 1941-45, compared with the previous high of 4.4 percent for the years 1928-32. In the 1941-45 period, when western regions of the USSR were under occupation, Siberia as a whole was allotted 18.0 percent of total USSR investment, a record percentage still unsurpassed.

Although a number of machine-manufacturing centers had been established prior to the war at such places as Omsk,

Novosibirsk, Krasnoyarsk, Irkutsk, Khabarovsk, and Komsomol'sk, they played a relatively small role in early Siberian industrialization. In 1937, for example, machine manufacturing accounted for only 17 percent of the total value of Siberian industrial production, compared with 30 percent for the Soviet Union as a whole.

As a result of the evacuation, this sector gained in importance. From 1940 to 1943, it increased its output almost 11 times. Much of the increase in machine manufacturing was directly related to filling the needs of wartime defense industries. Among the new manufacturing industries introduced at this time into Siberia, however, were agricultural equipment plants located at Rubtsovsk (in Altay Kray) and Krasnoyarsk. Omsk and Novosibirsk turned into virtual boom towns. The population of Novosibirsk grew by 480,000 during the intercensal period of 1939-59, and that of Omsk by 300,000.

Although great emphasis was placed on the development of Siberian manufacturing industry during the war years, resource-based primary industry remained important. This was especially true after the Germans occupied western regions of the USSR which had most of the country's prewar pig iron, steel, and coal capacity. In 1945, relying primarily on the Urals-Kuznetsk complex, Siberia accounted for 31.5 percent of the Soviet Union's coal output, a share that was not reached again until the 1970's. The high levels of Siberian pig iron and steel production relative to total USSR production--in 1945 the respective figures were 18 and 21 percent--have not been equaled since the war.

(U) Postwar Development: Movement Away From Integrated Development

The eastward movement of industry was reversed in the early postwar era, as Soviet industrial investment was channeled into war-devastated regions during the 1946-50 period. Siberia's share of total USSR investment declined to 13 percent. The first postwar five-year plan provided for few major construction projects, although work was begun on a new coke-based chemical plant at Kemerovo in the Kuznetsk basin, a chemical fiber plant at Barnaul in Altay Kray, and oil refineries at Omsk and Angarsk. These projects, however, did not go into operation until 1955-56, so they had no impact on Siberian economic performance during the late

1940's and 1950's. No new machinery industries of any significance were built in Siberia in the immediate postwar years.

In the last two decades, Siberian investment has hovered between 15 and 16 percent of total USSR investment, while development has continued some trends set in the immediate postwar period. Increasingly in practice, if not in theory, Siberian development has moved away from the concept of integrated industrial development and focused more exclusively on extraction and primary processing of raw materials and energy resources. Where manufacturing industries have been established, they have usually been highly energy-intensive.

This reorientation of Siberian development has in part resulted from changing labor policies. The abolition of forced labor as a mass institution has placed severe constraints on the availability of labor for Siberian projects. Relatively few workers have been willing to forsake better living conditions in other regions of the USSR for the rigors of the Siberian climate. It has estimated that there was a net migration out of Siberia during the 1959-70 period. Manpower shortages in European Russia and the unwillingness of surplus Central Asians to migrate also have contributed to Siberian labor shortages.

The major cause for the new direction in Siberian development, however, was the discovery of vast Siberian energy resources. This find, combined with depletion of older resources in other parts of the country and the USSR's growing appetite for energy, led to enormous investments in Siberian energy projects.

Siberian Oil Development: The Wager on Tyumen

(U) Nowhere has the emphasis on development of Siberian energy resources been more evident than in the oil industry. Siberia's share of national oil production has increased steadily since 1965, when the Volga-Urals oilfields began to peak in production. Between 1965 and 1975, Siberian annual oil production increased from 1.4 percent (3.4 million metric tons) of total USSR production to 40.5 percent (150 million metric tons).

(U) With the leveling of Sakhalin output at 2.5 million metric tons annually, the vast bulk of the increase in

Siberian oil production came from West Siberia. In 1975, Tyumen Oblast alone accounted for 99 percent of all Siberian oil production. And more than three-fifths of Tyumen production came from a single giant oilfield, Samotlor, located near the towns of Nizhnevartovsk and Surgut.

(U) With recoverable reserves estimated in the 1970's at 2 billion tons, Samotlor represented the giant Soviet oil bonanza of the decade. Between 1970 and 1976 its output jumped from 4 million tons to 110 million tons. The rapid development of this field has led in turn to the construction of two new petrochemical plants, located at Tobol'sk and Tomsk. Indeed, the petrochemical plant situated at Tobol'sk is expected to lead to a rebirth of that old Siberian town. (Tobol'sk served for 250 years as the administrative center of West Siberia until a southward shift of transport routes and economic activities caused its decline in the early 19th century.) If the first stage of the Tomsk project goes into operation as planned in 1980, Tomsk will be the largest Soviet producer of polyethylene and polypropylene.

(U) Although Siberian oil refineries currently operate at Angarsk and Omsk, three-quarters of Siberian crude is sent to refineries in western USSR. This westward flow has required construction of an extensive pipeline system. The first pipeline was completed in 1967 to Omsk; in 1972, Samotlor gained a second outlet with the opening of a line running southeast along the Ob River to join the Trans-Siberian pipeline system at Anzhero-Sudzhensk. This pipeline was later extended eastward toward Krasnoyarsk in order to supply the Achinsk refinery. In 1973 and 1976, pipelines were constructed from Samotlor to the Tatar oil center of Almet'yeusk on the Volga River. Pipelines supplying Central Asian refineries are currently under construction.

(U) As the center of West Siberian oil and gas development, Tyumen Oblast has become one of the country's fastest growing economic regions. It received more investment resources in the mid-1970's than any other Soviet administrative division except Moscow City and Moscow Oblast. Total investment in Tyumen Oblast in 1978 was 2.7 billion rubles, which was twice the 1970 level and represented 2.6 percent of all Soviet investment in the economy. Tyumen industrial output more than doubled between 1971 and 1975, compared with a national growth rate of only 43 percent.

(U) In these same years, Tyumen also grew rapidly in population. Khanty-Mansi National Okrug, the administrative division of Tyumen Oblast where the oilfields are concentrated, rose in population from 271,000 in the 1970 census to 425,000 in an early 1976 estimate, or by 57 percent. Yamalo-Nenets National Okrug, the more northerly administrative area with the West Siberian gasfield, grew from 80,000 in 1970 to 126,000 in 1976, or by 58 percent.

(C) Paradoxically, the greatest boon to the Soviet oil industry has become its Achilles heel. Having found irresistible the temptation for over-exploitation of the readily accessible deposits of Samotlor, the Soviets must now contend with the problems of premature depletion. The early peaking of production at Samotlor will require increased exploitation of smaller fields (with attendant increased capital costs) unless new oilfields of the magnitude of Samotlor are discovered. While a number of high-ranking Soviet oil and gas officials seem to have seriously entertained this latter possibility, there has not been sufficient geological exploration to substantiate it. Indeed, the whole question of the extent of oil reserves in Tyumen Oblast remains a question hotly debated within the Soviet Government.

(S/NF/NC) In 1977 these problems caused increasing concern within the party leadership. CIA analysis indicates that the absolute increase in oil production in that year was about 500,000 barrels per day, the smallest since 1972, and that the concomitant 5-percent rate of growth was the lowest in three decades. Faced with an intensification of energy shortages, the December 1977 party plenum decided to de-emphasize development of coal and nuclear power in favor of even greater development of Tyumen oil and gas.[3/]

(C) While the operational consequences of this decision are far from clear, it appears to signal:

--diversion of resources from older Volga-Urals oilfields (drilling brigades have already been pulled

3/ For a discussion of the December 1977 plenum and the political maneuvering surrounding USSR energy policy, see CIA study RP 79-10004, Politics of the Soviet Energy Balance: Decisionmaking and Production Strategies.

out of the Urals-Volga fields and flown to drilling sites in Tyumen);

--increased development of smaller Tyumen oilfields; and

--increased attention to exploratory oil and gas drilling in Tyumen.

(C) Greater relative emphasis on West Siberian than on older USSR fields is likely to increase the demand for Western (and Japanese) drilling equipment and portable drilling rigs, gas-lift equipment, multiple completion equipment, and seismic exploration devices. The foreign exchange costs of the new program could be less, however, than those for a strategy based on tertiary oil recovery in the Volga-Urals fields.

(C) Whether the new emphasis on Tyumen will pay off even in the short run is unknown. A shortage of trained drilling crews represents a critical bottleneck. According to one account, 180 drilling brigades will be required to meet the five-year drilling plan, but as of January 1978 there were only 83 in Tyumen. Furthermore, the strategy may be partially based on the belief that another giant oilfield will be found. If this belief comes a cropper, the strategy could be abandoned altogether. Indeed, there is evidence to indicate that Premier Kosygin and Gosplan chairman Baybakov have accepted the new direction with only the greatest reluctance. Both continue to stress the need to develop nuclear power and coal resources.

Siberian Gas Development

(U) For a number of reasons, Siberian gasfields have been developed much more slowly than Siberian oilfields:

--because of the USSR's heavy reliance on oil in its energy balance--oil currently constitutes 45 percent of USSR domestic fuel output and natural gas 24 percent--oil production has had higher priority than gas production;

--non-Siberian oil production peaked much earlier than did non-Siberian gas production;

--Siberian gasfields are, in many instances, situated in a less accessible and more northerly location than Siberian oilfields; and

--discovery of large gasfields in Siberia coincided with discovery in Turkmenia of natural gas, which was more accessible and less costly to develop than Siberian gas.

(U) As non-Siberian gas production began to level off in the mid-seventies, however, Siberian production expanded rapidly. In 1970 Siberia produced 11 billion cubic meters (cm.) or 5 percent of all USSR production. By 1976, it produced 49 billion cm. or 16 percent of all production; and according to plan projections, in 1980 it should produce 158 billion cm. or 36 percent of total USSR production. With 70 percent of all gas reserves, Siberia will in the future become the major locus of USSR gas development.

(C) While Yakutsk in East Siberia may have reserves rivaling those of West Siberia, the main center of the Siberian gas industry to date has been Tyumen Oblast, where 61 percent of all proven USSR gas reserves and two of the world's largest gasfields (Medvezh'ye and Urengoy) are located. Development of the huge Medvezh'ye deposit in the early and mid-1970's increased northern Tyumen's share of annual industry investment to well over 30 percent. CIA estimates that from 1970 to 1977 Tyumen production rose from 1.2 billion cm. (4.6 percent of total USSR production) to 67.9 billion cm. (19.6 percent of total USSR production).

(C) While Medvezh'ye is now the Soviet Union's largest operating gasfield, the key to future growth is the Urengoi deposit, which is probably the world's largest gasfield. The Soviets apparently are planning to hike Urengoy's output rapidly, from 15 billion cm. in 1978 to about 60 billion cm. in 1980. Facilities to process up to 16 billion cm. of associated gas from Samotlor and other oilfields in southern Tyumen are also planned to reach full capacity in 1980.

(C) Tyumen gas development in 1976-80 will prove much more expensive than in 1971-75. In order to bring West Siberian output up to the goal of 155 billion cm. by 1980, Moscow in the current plan period will have to pour into Tyumen 15 billion rubles or 80 percent of all gas industry capital investment. More than 500 extraction gas wells are scheduled to be drilled--the largest number of gas wells ever completed in any one Soviet region during a five-year plan.

(U) These high costs are indicative of the difficulties as well as of the scale of Tyumen gas development. Tyumen production must overcome inadequate infrastructure, problems of drilling and maintaining wells in permafrost conditions, and difficulties in attracting labor. In addition, enormous wastes have resulted from the failure of ministries with a low stake in Siberian projects to honor investment commitments.

(C) The single most important item raising Siberian gas production costs is pipeline construction, however. To move Tyumen gas to Soviet and European consumers, two pipeline systems have been completed and a third is under construction. Pipeline transport already embraces three-fourths of the gas industry's fixed capital and receives about 60 percent of the industry's annual investment. About 20 percent of its 200,000-man labor force is employed in the laying, maintaining, and operating of the pipelines. When all three pipeline systems are completed, they will constitute the single largest pipeline system in the world.

(C) Soviet domestic pipe mills and machine-building plants have been unable to supply the needed quantity and quality of pipe, compressors, and valves. As a result, the Soviets have had to rely on imports of Western (including Japanese) pipe and compressors to meet their pipeline goals. From 1971 to 1975, the Soviets imported 6 million tons of large-diameter welded pipe (out of a total of 14 million tons laid). These imports will total 8-10 million tons for the 1976-80 period. Because Soviet gas pipeline compressor technology is 10-15 years behind that of the West, the Soviets have imported in the last four years more than $1.5 billion worth of high-technology compressors.

(S/NF) To pay for these imports, the Soviets have entered into numerous pipe-for-gas agreements with the West. The first gas deal was signed with Austria in 1968, and similar contracts have been signed with Italy, West Germany, and France. Soviet hard-currency gas exports under these and supplementary contracts reached 11.5 billion cm. in 1976 and are scheduled to reach 34 billion cm. annually by 1985 as additional pipelines are completed.

(C) There is evidence to suggest that from 1972 to 1974, the Soviet leadership considered an even larger expansion of

Tyumen (and Yakutian) natural gas through compensation deals with the West and Japan. (The never-consummated North Star enterprise involving the US was one such project under consideration.) This approach, attacked by influential figures within the Soviet elite as a "giveaway" of the national patrimony, was rendered all but impossible by the "Stevenson Amendment" (passed in December 1974), which effectively denied US credits for Soviet energy projects.

(C) Despite the failure of the Soviet "big gas" strategy to get off the ground, natural gas is expected to assume increasing prominence in the country's domestic energy balance if, as predicted, oil production stagnates or declines. According to CIA projections, by 1985 natural gas could account for about 40 percent of total Soviet fuel output and could replace oil as the leading commodity in Soviet exports. Increased dependence on gas will willy-nilly force the Soviets to give even greater emphasis to Siberian gas development. This in turn may lead the Soviets to seek additional gas-for-technology agreements with the West.

Siberian Coal Development

(U) Just as the USSR's oil and gas industries have shifted the focus of their activities to Siberia as resources in older producing regions have become depleted, so too has Siberia assumed increasing importance in coal production as mines in the western USSR (primarily those of the Donets Basin) have become exhausted. The European USSR is expected to contribute no more than 340 million tons to the 790-810 million tons of Soviet output planned for 1980. Sixty-five percent of the USSR's explored coal reserves of 255 billion tons and perhaps 90 percent of its total geological reserves of 7 trillion tons are now located in Siberia.

(U) Since World War II, the Kuznetsk basin has steadily expanded its production of both steam and coking coals. In 1960 it produced 84.0 million metric tons or 16.5 percent of all USSR coal production; by 1975, it produced 137 million metric tons or 19.5 percent of all USSR production. In that same period, its production of coking coal more than doubled, rising from 2 5 million metric tons (26 percent of USSR production) to 5 million metric tons (31 percent of USSR production). Because high heating values and low extraction costs enable Kuzbas coal to be profitably transported, more

than one-half of it is shipped out of West Siberia--mainly westward.

(U) In addition to being shipped to the Urals and the European USSR, Kuzbas coal has stimulated the expansion of iron and steel production within the Kuznetsk basin. In general, however, a shortage of economical iron ore resources appears to preclude further intensive development of the iron and steel industry in Siberia. While Kuznetsk's gross output of pig iron and crude steel tripled and doubled respectively between 1945 and 1975, its share of total USSR production greatly declined in the same period.

(U) Besides the Kuznetsk basin, the major repository of Siberian coal reserves is in the Kansk-Achinsk basin. Stretching some 700 kilometers along the Trans-Siberian Railway, east and west of Krasnoyarsk, Kansk-Achinsk coal reserves are among the world's largest. Current production, amounting to 2 million tons in 1975, has been restricted to the limited local market and is still far below potential. Some long-term Soviet forecasts envisage the basin's having an annual output of 1 billion tons. Since many of these reserves are suitable for easy strip mining, Kansk-Achinsk coal may be among the cheapest to mine in the Soviet Union, with the possible exception of coal in the Ekibastuz basin of northeast Kazakhstan.

(U) Large-scale development of Kansk-Achinsk coal has been held up by a number of technological problems. The coal has a low caloric value and a high water and ash content. This has created major boiler problems when the coal has been burnt in existing power plants. Furthermore, the coal has a tendency to self-ignite when transported without prior processing. This latter quality is especially troublesome because Kansk-Achinsk is located more than 3,200 kilometers from Moscow and 1,600 kilometers from the Urals industrial region.

(U) A number of strategies have been devised to cope with these problems. Some have advocated converting the coal into an enriched and transportable "semicoke" through the pyrolisis technique and then transporting it by special railway, slurry, or capsule pipeline; others have suggested the drying, gasification, or liquefaction of the gas; and still others have advocated burning the coal in enormous mine-mouth power plants and then transmitting the electrical

energy westward over long-distance, super-high voltage lines. All of these approaches, however, involve either unperfected and untested technologies or technologies entailing inordinate costs.

(C) The Soviets' failure to score a technological breakthrough in developing Kansk-Achinsk coal has placed severe limits on their coal production. As a result of the shift to oil and gas in the 1940's and 1950's, growth in raw coal production declined from about 5 percent per year in the late 1950's to about 2.5 percent in the early 1970's. (From 1960 to 1976, coal's share in Soviet energy consumption declined from 50 percent to about 30 percent.) Since 1975, the growth of output has slowed still further, to only 1.5 percent per year in 1976-77. The 1978 output of 724 million tons (raw coal) was 22 million tons below that projected by the 1978 plan. According to CIA calculations, 1980 output will probably fall short of the goal of 805 million tons.

(U) Development of Siberian Hydroelectric Power

Despite the fact that Siberian economic development in recent decades has become increasingly resource-extractive, Soviet planners and theoreticians continue to expound the virtues of integrated regional development. They continue to advocate "territorial industrial complexes" in which local resources are used to build a stable, local industrial base. If any aspect of Siberian development embodies this concept, it is the Siberian development of hydroelectric power, wherein a number of large power dams have provided the basis for developing power-intensive industries.

While a number of hydroelectric plants supporting mining operations exist in the Soviet Far East, the largest hydroelectric programs are centered on the East Siberian Angara and Yenisey Rivers. Begun in the mid-fifties, these programs involved not only the construction of large power dams and associated generating capacities, but also a series of such power-intensive industries as aluminum, chemicals, and wood pulp. As the large power dams were completed, East Siberia surpassed West Siberia in power output. By the mid-1970's East Siberia was contributing almost one-tenth of all Soviet electricity production, including 40 percent of all hydroelectricity.

The first great Siberian power project was the Bratsk Dam on the Angara River. Construction began in 1954. By 1966, the dam generated a total capacity of 4,050 megawatts. In the absence of local power users, the Bratsk Dam in its first years of operation generated only about 25 to 30 percent of its potential, and what was generated was transmitted 360 miles over two 220-kilovolt lines to Irkutsk. In 1963, a power line was completed westward to Krasnoyarsk, and three years later an aluminum plant and wood pulp mill using Bratsk electricity began operation there. About 40 percent of Bratsk generating capacity is now consumed locally.

In the late fifties and early sixties, a number of other hydroelectric complexes were built on the Angara River at Irkutsk and Ust'-Ilimsk. The complex at Irkutsk services an aluminum plant; the one at Ust'-Ilimsk provides electricity to a timber processing complex designed to produce pulp, sawn wood, railroad ties, chipboard, and other wood products. The newest Angara power project, near Boguchany, is expected to be completed in the 1980's and will also involve aluminum and timber processing complexes.

Until Siberian hydroelectric development facilitated the opening of the Krasnoyarsk pulp and paper mill and the Bratsk and Ust'-Ilimsk wood pulp complexes, the Siberian wood-processing industry lagged behind the logging industry. In 1965, the Siberian contribution to USSR pulp production was less than 10 percent. By 1975, however, it had risen to about one-quarter of all national production.

Aluminum plants have already been built around power stations on the Yenisey River at Krasnoyarsk and are in the process of being built at the newly founded city of Sayanogorsk. The big Sayan hydrcelectric complex is expected to become the heart of a diversified industrial district, which will include a 400,000 ton-per-year aluminum smelter at Sayansk. The Soviets are currently negotiating with a consortium of West German and American companies, as well as with a competing French company, for the contract to build this plant. Besides such power-intensive industries as aluminum, special electric steels, and ferroalloys, Sayansk is supposed to include a wide range of other manufacturing activities. A freight-car building plant, for

instance, went into operation in 1976 at Abakan to manufacture container flat cars for the burgeoning Trans-Siberian container rail traffic. Four other Yenisey River projects are now in the planning stage.

Among the significant outlying hydroelectric developments in Siberia are the Khantayka and Kureyka stations of the Noril'sk nickel-platinum complex. Noril'sk energy needs have been steadily increasing with expansion of mining, concentrating, and smelter operations that began with the discovery of the rich Talnakh ore bodies. In an intensive development program that began in the early 1960's, a series of increasingly deep and large underground mines have been built to tap rich sulfide ores yielding nickel, copper, cobalt, platinum-group metals, and a dozen coproducts. In the next few decades, Noril'sk will, despite its adverse location in the Arctic environment of northern Siberia, become one of the world's principal sources of these metals. Its transport position should be enhanced by the increased use of nuclear icebreakers.

BAM: "The Project of the Century"

(U) Construction of the 2,670-mile Baykal-Amur Main (BAM) Railroad is one of the world's most grandiose economic projects. The line will facilitate development of valuable Siberian mineral and timber resources and will provide a backup for the Trans-Siberian Railroad, which lies close to the Chinese border. Published Soviet estimates place the overall construction cost at more than $15 billion--about twice the cost of the Alaskan pipeline. As was the case of the Urals-Kuznetsk combine, Bratsk and Samotlor, news about the railroad fills the Soviet press. Soviet authorities are compiling a bibliography devoted to the BAM, and a BAM yearbook is to be published annually during the years of construction.

(U) Stretching between Tayshet and Sovetskaya Gavan, the BAM will traverse five East Siberian and Far Eastern administrative subdivisions of the Russian Republic (RSFSR): Irkutsk Oblast, Buryat Autonomous Republic, Chita Oblast, Amur Oblast, and Khabarovsk Kray. In addition, a 250-mile line running perpendicular to the BAM, called the "Little BAM," enters Yakut Autonomous Republic.

(U) The areas crossed by the BAM include some of the world's most difficult terrain: mountain ridges, permafrost zones, thousands of watercourses, and innumerable bogs. The climate is cold enough in winter to shatter ordinary steel and hot and humid enough in summer to make life uncomfortable. By the time the BAM is completed (the planned date of 1983 is not likely to be met), 1 billion cubic feet of earthwork will be finished; 3,700 bridges and culverts will be in place; and 15 miles of tunnels will have been dug.

(U) Although the idea of constructing a second Siberian railroad goes back to the first year of Soviet power, construction was not begun until 1939. Interrupted by the war, work on the railroad remained sporadic until March 1974, when Brezhnev proclaimed it to be one of the two major projects of the 10th five-year plan (1976-80).

(U) A number of strategic concerns argue for completion of the BAM. Not only is the Trans-Siberian vulnerable to Chinese attack, but development and population of remote Soviet regions bordering China could be the best prophylactic against a Chinese land-grab. A developed infrastructure could also provide logistical support for Soviet troops in the Far East.

(U) Most experts agree, however, that the BAM's high priority stems more from economic than from strategic considerations. With the Trans-Siberian's ability to handle freight traffic strained to the limit--since 1945, freight volumes on it have increased about eight times--another railroad is required for exploitation of Pacific Siberian natural resources.

(U) Paralleling the Trans-Siberian at a distance of 110 to 310 miles to the north, the BAM will service a zone 95 to 125 miles north and south of the track (or about 600,000 sq. mi., more than three times the size of France). Perhaps as much as half of the USSR's potential reserves of important raw materials is located in this region, including:

--copper-ore deposits estimated at 1.2 billion tons in the Udokan Mountains; these readily exploitable deposits are comparable in size and quality to the

Soviet Union's largest copper site at Dzhezkazgan in Kazakhstan;

--coking coal of southern Yakutsk, the estimated reserves of which exceed 40 billion tons; the most promising site is at Neryungri;

--Aldan iron ore deposits, whose long-range potential reserves may equal 20 billion tons; the proximity of cheap iron ore and coking coal in southern Yakutsk may provide the basis for the establishment of a new iron and steel plant in Pacific Siberia; and

--immense timber reserves; estimates of the potential volume of mature timber located within the 100 million acres of forest flanking the railway vary between 1.4 and 15 billion cubic meters.

Exploitation of Yakutian oil and natural gas and large deposits of asbestos, phosphate, mica, gold, and tin will also be facilitated by the BAM.

(U) The high costs of the BAM and Pacific Siberian development in general have led the Soviets to seek Western and Japanese involvement in eastern projects. To secure guaranteed export markets, Moscow has turned to compensation agreements whereby foreigners provide the technology for development projects and receive back some of the raw materials produced.

(U) Because of its scarcity of key natural resources and its proximity to Siberia, Japan has thus far been the Soviet Union's principal partner in these ventures. The first Soviet-Japanese compensation agreement was signed in 1968, before work on the BAM was accelerated. Tokyo exported bulldozers, timber-processing equipment, and consumer goods in exchange for Pacific Siberian timber, wood chips, and pulp.

(U) The Japanese and Soviets followed up this agreement by concluding two similar ones dealing with timber in 1971 and 1974. Also in 1974, Japan and the USSR jointly undertook development of oil deposits offshore from Sakhalin Island in the Sea of Okhotsk north of Japan (Gulf Oil Corporation is participating in this development.) That same year Japan

agreed to help the Soviets develop the southern Yakutsk coal fields by providing $350 million of equipment in exchange for coking coal. Moscow is currently negotiating with the US, UK, and Japan on Udokan copper projects.

(U) The potentially largest Siberian project involving foreign participation in compensation deals centers on Yakutsk natural gas. As presently envisioned by the US, the project would require a 3,700-km. pipeline from Vilyuisk to the port of Olga on the Sea of Japan, liquefaction facilities, and three liquified natural gas (LNG) carriers for Japan and eight for the United States. Japan and the United States each would receive 10 billion cubic meters of gas annually for 25 years. According to estimates presented at a March 1978 meeting of the US, Japanese, and Soviet participants, machinery and equipment will cost $4 billion (split equally between the Japanese and US firms), and the carriers and regasification facilities, $2.9 billion.

(C) Despite the fact that this project has been on the drawing boards for most of this decade, major elements of it remain undefined. There has not yet been verification of the 1 trillion cubic meters of reserves required before American and Japanese companies will find this a profitable venture. Final agreement has not been reached on the route of the pipeline. US policy on LNG imports has not been finally determined, nor is it known whether the price of the gas will be competitive. Finally, it is doubtful whether private US firms can raise the necessary capital without Eximbank credits currently denied by US legislation for Soviet energy projects. Given these problems, Japan, which is concerned to build trade (including oil and coal deals) and political relations with China, has indicated it will not participate unless the US does.

(U) The slow progress on the Yakutsk project is indicative of the greater general caution evinced by both the USSR and Western countries in concluding new compensation agreements. Moscow may feel that it has all the major projects it can now handle. (The 1978 plan for construction of projects involved in compensation agreements was 1.3 billion rubles. Actual construction fell off this pace, and, where construction was finished, production often started slowly because of supply shortages.) The Soviets may also be reluctant to commit themselves to any BAM-

related projects until construction of the mainline is further along.

(U) On the Western side, caution stems from the frustrations of working with the Soviet bureaucracy, concern over the quality and reliability of Soviet output, slack raw material markets, Soviet failures to permit verification of raw material reserves, and, frequently, Soviet demands for extremely liberal financing. Western companies have also been dissatisfied over their failure to obtain adequate managerial control over the projects.

(U) Future economic trends, however, could act to remove at least some of the obstacles on both sides. Rising world energy prices could enhance Western interest in Siberian natural gas projects. Similarly, completion of the BAM and even greater stringencies in the USSR energy balance could lead to new Soviet initiatives to obtain Western assistance for development projects.

(U) Conclusion

As the foregoing broad survey of major Siberian projects has indicated, Siberian development in recent decades has come to stress resource extraction over integrated territorial development. This trend is likely to continue for the foreseeable future because the bulk of the USSR's natural resources is now located in Siberia and because Siberia lacks a labor force sufficient for integrated industrial development.

Development is expensive, however, in a cold, remote area where infrastructure is virtually non-existent and labor and hauling costs are high. The timing for the massive outlays that will be needed for future development is also not good. The USSR is currently plagued by a whole host of other economic problems, which have contributed to a slackening economic growth rate. The share of gross national product allotted to the military sector appears to be undiminished.

All of these factors are likely to keep Soviet leaders interested in securing Western cooperation in Siberian development projects, though the form and terms of cooperation Moscow feels able to proffer will go far to determine

the actual extent of Western involvement. In the past, the Soviets have shown a marked preference for compensation agreements because they guarantee export markets.

Although a number of factors in recent years have forced all sides to proceed more slowly in concluding these agreements, current economic trends could help rather than hinder prospects for future deals. This may especially be true of Siberian energy-related projects because energy shortages will continue to plague East and West alike.

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[illegible]: SOVIET GAS MINISTER SAYS MAIN RESERVES WILL BE [illegible]A WEST SIBERIA

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[illegible]MARY: DURING MAY 03 MEETING WITH AMBASSADOR, [illegible]INISTER OF THE GAS INDUSTRY ORUDZHEV STATED [illegible]LY THAT MOST FUTURE SOVIET GAS RESERVES WILL BE FOUND [illegible] AND IN WEST SIBERIA. EXPLAINING THAT RESPONSI- [illegible]Y FOR EXPLORATION AND RECOVERY OF OFFSHORE GAS AND [illegible] GIVEN TO HIS MINISTRY BECAUSE OF HIS OWN PERSONAL [illegible]IFICATIONS AND EXPERIENCE, ORUDZHEV INDICATED THAT [illegible]FFSHORE ACTIVITY WOULD BE IN CASPIAN, SEA OF AZOZ, [illegible]N TIP OF BLACK SEA AND THE BALTIC; HE HAD LITTLE [illegible]Y ABOUT SIBERIA'S NORTHERN WATERS (INCLUDING [illegible]S) BUT MENTIONED SAKHALIN. HE SAID THAT IRANIAN [illegible]LOW THROUGH IGAT-1 RESUMED APRIL 1? AND IS NOW AT [illegible]RCENT CAPACITY BUT IMPLIED IRANIANS ARE SEEKING TO [illegible]PRICE. ORUDZHEV SAID USSR NOW PRODUCES [illegible]30,000 [illegible]% OF LARGE DIAMETER PIPE BUT NEEDS LARGE [illegible]S (HE MENTIONED MANNESMANN BY NAME). CONCERNING [illegible]IA, MINISTER SAID THAT SUBSTANTIAL GAS EXISTED IN [illegible]T HAD BEEN FOUND IN SMALL AND SCATTERED POOLS. [illegible] LIKE TYUMEN HAS BEEN FOUND THERE, AND THE YAKUTIA [illegible]ERAL PROJECT IS A LONG WAY OFF, HE SAID. HE LAMENTED [illegible]AL USE OF GAS IN SOVIET UNION, STRESSING THAT MOST [illegible]AL USE WOULD BE FOR CHEMICAL PRODUCTION. ORUDZHEV, [illegible] A CHARTER MEMBER OF THE BAKU TRUST IN THE USSR, [illegible]TALLY UNAWARE THAT GEORGIY ARBATOV REPRESENTS BAKU [illegible]PHONE SOVIET AND HAD NEVER ASSOCIATED ARBATOV WITH [illegible]PLACE. ORUDZHEV SPOKE OF HIS PLANS TO VISIT ALASKA [illegible]-A AND EXPLAINED WHY HIS DELEGATION WOULD APPLY FOR [illegible]N OTTAWA OR TORONTO (SEPTELS). END SUMMARY.

3. AMBASSADOR WAS RECEIVED BY ORUDZHEV IN PRESENCE OF MINISTRY'S OWN FOREIGN RELATIONS ADMINISTRATION OFFICIALS V.S. DEMIDOV AND V.S. MAKHEYEV AND WAS LATER TAKEN TO MINISTER'S OWN OFFICE TO EXAMINE HIS MAP OF GAS DEPOSITS AND PIPELINES. E/C COUNSELOR ACCOMPANIED AMBASSADOR.

4. RESERVES AND EXPLORATION. ASKED WHERE SOVIETS WOULD BE CONCENTRATING SEARCH FOR NEW GAS DEPOSITS, ORUDZHEV REPLIED UNHESITATINGLY THAT IT WOULD BE ONSHORE, NOT OFF SHORE. HE REPLIED WITH EQUAL DEFINITION THAT MOST RESERVES WOULD BE FOUND IN WEST SIBERIA VICE EAST SIBERIA.

5. OFFSHORE. IN RESPONSE TO DIRECT QUESTION WHY HIS MINISTRY WAS AWARDED RESPONSIBILITY FOR OFFSHORE EXPLORATION AND RECOVERY OF BOTH GAS AND OIL, ORUDZHEV STATED FLATLY THAT DECISION WAS TAKEN BECAUSE OF HIS PERSONALITY HIS LONG BACKGROUND IN MINISTRY OF OIL AND HIS CONSIDERABLE EXPERIENCE IN OFFSHORE WORK, ESPECIALLY IN THE CASPIAN SEA. USING HIS POINTER TO ILLUSTRATE, ORUDZHEV INDICATED THAT MOST OFFSHORE WORK WOULD BE IN CASPIAN, SEA OF AZOV, NORTHERN TIP OF BLACK SEA (WEST OF CRIMEAN PENINSULA), AND THE BALTIC. HE APPEARED TO BE SKEPTICAL ABOUT EARLY PROSPECTS FOR NORTHERN WATERS, LIKE BARENTS AND KARA SEA OFF YAMAL PENINSULA. AS TO MORE EASTERN WATERS, HE MENTIONED ONLY SAKHALIN.

6. YAKUTIA. PREFACING REMARKS WITH EXPRESSION OF HOPE FOR FUTURE AND COMMENT THAT EXPLORATION HAD SHOWN "SUBSTANTIAL DEPOSITS," MINISTER ORUDZHEV WAS NEVERTHELESS IN GENERAL NO MORE POSITIVE ABOUT YAKUTIA THAN HE WAS IN CONVERSATION WITH SENATOR STEVENSON IN JANUARY, 1978 (78 MOSCOW 937, NOTAL). INDIVIDUAL DEPOSITS FOUND, HE SAID, ARE LOCAL AND SMALL (HE REPEATED WORD SMALL). A LARGE SINGLE POOL OF ONE TO TWO TRILLION TCM WAS NEEDED TO JUSTIFY EXPLOITATION. AMERICAN AND JAPANESE SPECIALISTS ARE WORKING ON PROJECT, BUT GAS FROM YAKUTIA WAS "FAR AWAY", THE MINISTER SAID. ASKED ABOUT SIZE OF YAKUTIA'S RESERVES, ORUDZHEV SAID THAT GEOLOGISTS HAD PREDICTED VERY EXTENSIVE RESERVES BUT LATER BLAMED "NATURE" AND A BI
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RUEHTR/AMEMBASSY TEHRAN 2149
RUEHKO/AMEMBASSY TOKYO 3581

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NUMBER OF OTHER REASONS FOR NOT BEING ABLE TO FIND THEM. NOTHING LIKE TYUMEN HAS BEEN FOUND IN YAKUTIA."

7. TYUMEN. ORUDZHEV DID NOT ELABORATE ON SITUATION IN TYUMEN, BUT STRONGLY DENIED THAT PERMAFROST THERE IS ANY PROBLEM TO GAS RECOVERY. HE ACKNOWLEDGED HAVING AUTHORED ARTICLE (MOSCOW A-126) ON-SIGNIFICANT GAS TRANSMISSION PROBLEMS AND CONCEDED PROBLEMS EXIST BUT DID NOT PROVIDE ANY NEW INFORMATION.

8. PIPE. ORUDZHEV COMMENTED THAT SOVIETS MUST PURCHASE LARGE DIAMETER PIPE, MENTIONING FRG AND MANNESMANN BY NAME. IN RESPONSE TO DIRECT QUESTION, HE SAID THAT SOVIETS PRESENTLY PRODUCE 800,000 TONS OF LARGE DIAMETER PIPE ANNUALLY.

9. IRAN. ACKNOWLEDGING THAT IRANIAN GAS HAD BEEN CUT OFF UNTIL APRIL 12, ORUDZHEV SAID THAT PRESENT FLOW IS 50 PERCENT OF NORMAL. HE IMPLIED THAT IRANIANS MIGHT BE SEEKING HIGHER PRICES. HE PASSED SWIFTLY OVER WINTER PROBLEMS OF TRANS-CAUCASIA, MENTIONING THAT AREA HAD BEEN SUPPLIED FROM ELSEWHERE IN USSR.

10. MISUSE OF GAS. AS HE HAS DONE IN PAST, ORUDZHEV POINTED OUT WASTEFUL USE OF GAS FOR HEATING IN USSR, CITING ITS PRICE OF 16 KOPEKS (CA. $0.25) PER PERSON/MONTH AND NONEXISTENCE OF METERS. IT WOULD BE MUCH MORE EFFICIENT TO USE GAS FOR CHEMICALS THAN FOR PRODUCTION OF ELECTRICITY, HE SAID. WHEN AMBASSADOR ASKED IF THIS WAS MINISTER'S PERSONAL VIEW OR GOVERNMENT POSITION, ORUDZHEV EXPLAINED THAT IT WAS THE FORMER AND THAT THE GOVERNMENT'S PLANS HAD TO BE CARRIED OUT.

11. ORGANIZATION. TAKING AMBASSADOR ON BRIEF TOUR OF [illegible], ORUDZHEV SHOWED LECTURE HALL WHERE HE SAID 11 DEPUTY MINISTERS AND SIX MEMBERS OF MINISTRY BOARD MEET (CF TF 14025 OF SEPTEMBER 1978 SHOWS ONLY TEN DEPUTIES AND THREE MEMBERS OF COLLEGIUM; HOWEVER, RANTIK MARGULOV IS NOW A DEPUTY MINISTER, POSSIBLY THE ELEVENTH).

12. ARBATOV. CURIOUSLY, ORUDZHEV HAD NO KNOWLEDGE OF [illegible] ASSOCIATION BETWEEN USA/CANADA INSTITUTE DIRECTOR GEORGIY ARBATOV AND ORUDZHEV'S HOME TOWN, BAKU. ARBATOV REPRESENTS BAKU IN SUPREME SOVIET AND GOES TO GREAT LENGTHS TO STRESS THE CONNECTION, EVEN DEMONSTRATIVELY INVITING THE AMBASSADOR TO LUNCH AT THE "BAKU" RESTAURANT IN MOSCOW.

13. BAYBAKOV. ORUDZHEV, SHOWING AMBASSADOR PICTURES OF FORMER MINISTERS OF GAS, DREW SPECIAL ATTENTION TO [illegible] DEPUTY PREMIER AND GOSPLAN CHAIRMAN BAYBAKOV, FOR WHOM ORUDZHEV SAYS HE HAS A SPECIAL BONDNESS.

14. BIOGRAPHIC. ORUDZHEV DEMONSTRATED THAT HIS 67 YEARS HAVE NOT VISIBLY AFFECTED THE SHARPNESS OF HIS MIND. [illegible] OF BACK PROBLEMS, HOWEVER, HE LIKES TO WORK STANDING UP AT A ROSTRUM, WHERE HE CAN WRITE AND DESIGN. HE SPOKE WITH FAVOR OF HIS PERSONAL RELATIONSHIP WITH [illegible] ASTRONAUT STAFFORD, WHOM HE MET BY CHANCE IN [illegible] AND WHO LATER PRESENTED HIM WITH A PROTOTYPE OF [illegible] STAFFORD WORE ON THE MOON. ORUDZHEV MENTIONED [illegible] ATCHED CHAPTER 17 OF SOVIET TELEVISION SERIAL "[illegible] PATRIOTIC WAR" ON THE TEHRAN CONFERENCE, FAVORABLY [illegible] LEND-LEASE AND PRESIDENT ROOSEVELT. HE ALSO [illegible] HIS FRIENDSHIP WITH GENERAL ELECTRIC CHAIRMAN [illegible], WHO HAS INVITED HIM TO VISIT ALASKA PROCEEDING DIRECTLY FROM CANADA.

15. BY SOVIET STANDARDS, ORUDZHEV IMPRESSES FOR HIS [illegible]. HIS CLAIM THAT OFFSHORE WORK WAS AWARDED HIS [illegible] TEY DUE TO HIS OWN PERSONALTIY WAS STATED IN MATTER-[illegible]-FACT WAY, NOT BOASTFULLY, AND WE TEND TO BELIEVE THIS IS THE MAIN REASON M[illegible]. NEVERTHELESS, ORUDZHEV DID NOT [illegible] TO UNDERSCORE IMPORTANCE OF OFFSHORE EXPLORATION, [illegible] FLATLY THAT WEST SIBERIA IS THE MOST LIKELY LOCA[illegible] GAS RESERVES. HIS REMARKS ABOUT YAKUTIA, [illegible] TENT WITH THOSE MADE 16 MONTHS EARLIER TO SENATOR

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[illegible]ERSON, DO NOT COINCIDE WITH THE [illegible] AT SOVIET FOREIGN [illegible] MINISTRY OFFICIALS WHO ARE HANDLING THE TRILATERAL [illegible]OTIATIONS ON THAT PROJECT. WHILE IT IS THE MINISTRY OF [illegible]OLOGY, RATHER THAN THE MINISTRY OF GAS, THAT IS DIRECTLY [illegible]VOLVED IN RESEARCH, ORUDZHEV'S CAUTION IS INSTRUCTIVE. [illegible]EVER, HIS COLOR MAP DID SHOW BROAD AREAS IN EASTERN [illegible]BERIA WHICH APPARENTLY ARE VIEWED AS BEING OF GAS-[illegible]ARING POTENTIAL. HIS COMMENTS, IMPLICITLY UNDERSCORING [illegible]FLICT BETWEEN RATIONAL USE OF NATURAL GAS AND SOVIET [illegible]RIAL POLICY, AGAIN DEMONSTRATED THAT HE IS WELL AWARE [illegible] INEFFICIENCIES WHICH HE CANNOT CHANGE.

[illegible]. SINCE MEETING TOOK PLACE, GAS MINISTRY HAS BEEN [illegible]LING TO ASK IF THERE WILL BE ANY VISA DIFFICULTIES [illegible] MINISTER ORUDZHEV AND HIS PARTY WHEN THEY SEEK TO [illegible]ER U.S. ON JUNE 2. WE HAVE SUGGESTED THAT THEY APPLY [illegible] VISAS AT EMBASSY OTTAWA OR CONSUL TORONTO. TOON

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C O NFI D E N T I A L SECTION 01 OF 02 MOSCOW 14136

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E.O. 12065: GDS 06/01/85
TAGS: ENRG, UR, IR, US

SUBJECT: GAS AND OIL DEVELOPMENTS IN AZERBAYZHAN

REF: MOSCOW 13267

1. (C) SUMMARY. GAS FROM IRAN HAS ONLY REACHED 35 PERCENT OF PREVIOUS LEVELS ACCORDING TO A SOVIET SOURCE IN AZERBAYZHAN. AZERBAYZHAN OIL PRODUCTION WAS 16 MILLION TONS IN 1978 AND IS TO BE 16.8 MILLION TONS IN 1979. ONE HIGH REPUBLIC LEVEL OFFICIAL SAYS SOVIETS ARE ON POINT OF SIGNING CONTRACT WITH FRENCH FOR OFF-SHORE DRILLING PLATFORM FACTORY, BUT MFT OFFICIAL SAYS NO DECISION HAS BEEN MADE. END SUMMARY.

2. (C) FOLLOWING THEIR VISIT TO BAKU EARLIER THIS WEEK AMERICAN NEWSMEN HAVE FILLED US IN ON SOME OF THEIR DISCUSSIONS WITH AZERBAYZHANI OFFICIALS ON ENERGY MATTERS.

3. (LOU) GAS FROM IRAN. ON MAY 28 ALISH JAMIL LEMBERANSKIY, A DEPUTY CHAIRMAN OF THE AZERBAYZHAN COUNCIL OF MINISTERS WHO IS IN CHARGE OF INDUSTRY, SAID THAT AS OF 5 OR 6 DAYS PREVIOUSLY THE FLOW OF GAS FROM IRAN HAD REACHED 35 PERCENT OF THE PRE-CUTOFF RATE. HE ALSO SAID THE IRANIANS HAD "PROMISED" THAT THE FULL RATE WOULD BE RESUMED IN THE SUMMER (I.E. 10 BILLION CUBIC METERS).

4. (LOU) OIL PRODUCTION. AZERBAYZHAN FOREIGN MINISTER TAIRA TAIROVA TOLD THE CORRESPONDENTS EARLY IN THEIR VISIT THAT THE REPUBLIC HAD PRODUCED 16 MILLION METRIC TONS (MMT) OF OIL IN 1978 AND THAT THE GOAL FOR 1979 WAS 16.8 MMT. LATER ON ANOTHER OFFICIAL IN THE OIL INDUSTRY (NOT FURTHER IDENTIFIED FOR US) SAID THAT 1978

PRODUCTION WAS UP 18 MMT AND THAT NO INCREASE WAS EXPECTED IN 1979. HE ALSO SAID HOWEVER, THAT "SOON" PRODUCTION WOULD REACH 22 MMT. THE NEWSMEN WERE TOLD THAT 65 PERCENT OF AZERBAYZHAN'S OIL PRODUCTION COMES FROM OFF-SHORE AND THAT 75 PERCENT OF OFF-SHORE PRODUCTION COMES FROM "NEFTYANOMORE".

5. (C) FACTORY TO PRODUCE OFF-SHORE PLATFORMS. LEMBERANSKIY SAID THAT SOVIETS ARE ON POINT OF SIGNING A CONTRACT WITH THE FRENCH AND JAPANESE (SIC) FOR A FACILITY TO PRODUCE OFF-SHORE OIL DRILLING PLATFORMS. HE SAID SOVIETS WOULD NOT SIGN WITH ANY AMERICAN COMPANY BECAUSE OF ANTICIPATED PROBLEMS UNDER THE U.S. EXPORT CONTROL REGULATIONS. LATER A KNOWN AND ROOT REPRESENTATIVE TOLD A NEWSMAN THAT SOVIETS HAVE DECIDED TO PRODUCE ONLY THE LEGS IN BAKU AND TO PRODUCE THE MODULES IN ASTRAKHAN AND THAT THEY WANT TO DO THIS WITHOUT INCREASING THE PRICE OF THE CONTRACT DESPITE THE NEED FOR CERTAIN ADDITIONAL AMOUNTS OF MACHINERY AS A RESULT OF SPLITTING THE FACILITY. WHEREAS CONTRACT DISCUSSIONS HAD STARTED WITH THE OIL MINISTRY, THEY ARE NOW CONDUCTED WITH THE GAS MINISTRY AS IT HAS THE RESPONSIBILITY FOR OFF-SHORE WORK FOR BOTH OIL AND GAS. MOREOVER, NOW TWO OTHER MINISTRIES ARE ALSO INVOLVED, INCLUDING THE MINISTRY OF SHIPBUILDING AND THE MINISTRY OF SPECIAL STEELS (SIC).

6. (C) COMMENT. WE CALL ATTENTION TO THE DIFFERENCE BETWEEN LEMBERANSKIY'S STATEMENT THAT GAS FLOW THROUGH IGAT-I IS NOW 35 PERCENT AND GAS MINISTER ORUDZHEV'S STATEMENT TO AMBASSADOR THAT IS UP TO 70 PERCENT (REFTEL). PERHAPS EMBASSY TEHRAN COULD PROVIDE AN IRANIAN ASSESSMENT ON THIS POINT.

7. (C) WE ALSO NOTE THAT THE OIL PRODUCTION FIGURES, EVEN THE LOWER ONES, SEEM SOMEWHAT INFLATED COMPARED TO PRELIMINARY FIGURES IN CIA'S "INTERNATIONAL ENERGY STATISTICAL REVIEW."

8. (C) DURING MAY 31 RECEPTION AT SPASO, EMBOFF ASKED MFT'S ZINOV'YEV ABOUT ALLEGED DECISION TO GO NON-U.S. ON OIL-DRILLING PLATFORM PROJECT BECAUSE OF CONCERN ABOUT EXPORT CONTROLS. ZINOV'YEV STATED FLATLY THAT A DECISION HAS NOT YET BEEN MADE ON THE CONTRACT. HE ADDED THAT THE CONCERN MENTIONED WAS, OF COURSE, A FACTOR BUT NOT AN OVERLY IMPORTANT ONE. EMBOFF REITERATED THAT U.S.G. HAS APPROVED ALL LICENSE APPLICATIONS FOR
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OIL AND GAS FIELD EQUIPMENT. ZINOV'YEV REJOINDER WAS "YES, BUT WHEN? TOO LATE IN SOME CASES." TOON
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[illegible] DURING COURTESY CALL CONVERSATION WITH EMBOFF, MINISTRY OF FOREIGN TRADE MIDDLE EAST SECTION CHIEF [illegible] ZIMIN ATTRIBUTED SHARP DECLINE THIS YEAR IN SOVIET-IRANIAN TRADE TO GENERAL ECONOMIC DISLOCATION PRODUCED BY IRAN REVOLUTION RATHER THAN TO ANY DELIBERATE POLICY FOLLOWED BY THE SOVIET UNION. (SOVIET STATISTICS [illegible] TRADE TURNOVER OF 126.4 MILLION RUBLES WITH IRAN DURING JANUARY-JUNE, DOWN 73 PERCENT FROM THE SAME PERIOD IN 1978). ZIMIN SAID THAT DISRUPTIONS IN SUPPLIERS [illegible] AS CHEMICALS, CONSTRUCTION, AND FERROUS METALLURGY -- PRODUCT ON SHIFT BY ONGOING RE-ORDERING OF ECONOMIC PRIORITIES AND PROBLEMS IN MAINTAINING SUPPLIES OF IMPORTED RAW MATERIALS -- HAS INDUCED IRANIANS TO POSTPONE OR CANCEL ORDERS FROM THE USSR. EXPORTS MOST AFFECTED INCLUDE CEMENT, TIMBER, ROLLED FERROUS METALS, AND "VARIOUS CATEGORIES" OF MACHINERY AND EQUIPMENT. ON THE IMPORT SIDE, ZIMIN SAID THAT MOST "TRADITIONAL" IRANIAN GOODS [illegible] ARE RECEIVED ON SCHEDULE, BUT ACKNOWLEDGED THAT THERE HAS BEEN A REDUCTION IN SOVIET IMPORTS BECAUSE OF [illegible] AND THEIR REDUCED SHIPMENT [illegible] NATURAL GAS THROUGH THE [illegible] GAZ-1 PIPELINE.

3. ZIMIN SAID THAT THE BILATERAL GAS AGREEMENT, WHICH RUNS THROUGH 1985, IS OPERATING TO SOVIET SATISFACTION: ACCORDING TO HIS INFORMATION, GAS DELIVERIES NOW ARE RUNNING AT 60 PERCENT OF THEIR FORMER LEVEL, MORE OR LESS REFLECTING THE REDUCTION IN IRANIAN OIL PRODUCTION. ASKED ABOUT "RUMORS" OF NEGOTIATIONS ON GAS PRICING, HE SAID THAT "I CAN STATE OFFICIALLY" THAT NO TALKS ARE BEING HELD, EITHER ON PRICING OR ON THE CURRENCY OF PAYMENT. HE THEN VOLUNTEERED, HOWEVER, THAT THERE IS A PROBLEM IN THAT GAS PRICES CONSISTENTLY RISE BUT THAT THERE IS NO UNIVERSALLY AGREED "WORLD MARKET PRICE." (COMMENT: AS REPORTED REFTEL, THIS ISSUE REPORTEDLY HAS ARISEN IN SOVIET-IRANIAN TALKS ON PRICING. IN ANY EVENT, ZIMIN'S "OFFICIAL" DENIAL OF NEGOTIATIONS --A FORMULATION HE REPEATED LATER IN DENYING THAT THE IRANIANS HAVE MADE ANY DECISION KNOWN ABOUT THE PATH OF THE IGAT-II PIPELINE -- IS UNCONVINCING, BUT PROBABLY REFLECTS AN UNDERSTANDABLE DESIRE TO AVOID PUBLICITY).

4. ZIMIN SAID HE WAS UNFAMILIAR WITH THE DETAILS OF IRANIAN POWER MINISTER TAJ'S OCTOBER 4-10 VISIT TO THE SOVIET UNION, SINCE MAIN SOVIET SPONSORS HAD BEEN THE STATE COMMITTEE FOR FOREIGN ECONOMIC RELATIONS AND THE MINISTRY OF POWER AND ELECTRIFICATION. HE EXPRESSED OPINION THAT GAS TRADE WAS NOT BROUGHT UP DURING THE VISIT. SCANTY PRESS ACCOUNTS OF THE VISIT REPORT THAT TAJ DISCUSSED QUESTIONS OF SOVIET-IRANIAN COOPERATION IN THE CONSTRUCTION AND EXPLOITATION OF ENERGY PROJECTS IN IRAN, INCLUDING THE RAMIN AND ISFAHAN POWER PLANTS. GARRISON
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